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Chapter VII

General Nursing Care

INTRODUCTION

THE FOLLOWING MATERIAL is concerned with procedures which can be done at sea either in the sickbay or in the patient's cabin.

The persons responsible for patient care and observation should have a genuine interest in the total welfare of the patient. The attendant to the patient not only should be observant, but should listen to what the patient has to say. The patient's complaints may give a clue to what is wrong.

SICKBAY

The seaman's cabin generally is used as sick quarters. However, the sickbay should be ready at all times for occupancy. It should be used only for care of the sick or injured. Basic supplies and equipment should be stored in the room and placed in cupboards, not on open shelves. Excess personal articles should be stowed in drawers or lockers.

Admission to Sickbay

The patient's history, physical examination, and type and extent of the injury or illness will determine the course of action. In life-

threatening emergencies, treatment should be started immediately. When initiating care of a patient, this procedure should be followed:

- Take the patient's temperature, blood pressure, and pulse. Note if the pulse is thready, weak, rapid, or irregular.
- Observe the kind of respirations, whether shallow, labored, or stertorous (snore-like).
- Note whether there are any visible signs of injury or illness, such as skin lesions, abnormal swelling, or discoloration of the skin.
- Start treatment. (In a dire emergency, as in hemorrhage, or when breathing has stopped, treatment should start without delay.)
- Information on the patient should be recorded in the *Medical Logbook*. This should include the patient's vital signs, complaints, symptoms, and the attendant's observations. *The record is a legal document that should be kept carefully and accurately.*
- If the patient is admitted to the sickbay, an accurate list should be made of clothing, personal belongings, and valuables. Valuables should be secured under lock and key.

VITAL SIGNS

Vital signs are those measures of body-functioning which indicate how effectively the body is carrying out the essential activities of living. These measures include the following:

- Temperature
- Pulse
- Respiration
- Blood pressure
- Level of consciousness

Temperature

Temperature is the balance between the heat produced and the heat lost by the body. Body temperature is measured by a clinical thermometer, which has a column of mercury that will not fall of its own accord, but must be forcibly shaken down. The mouth, the most convenient place of taking a temperature, should not be used if the patient recently had hot or cold drinks or food. An oral temperature never must be taken when the mouth is dry, parched, or inflamed; or when the patient is restless, delirious, unconscious, or irrational. Also, an oral temperature should not be taken if the patient is a young child or infant as there is danger of biting, breaking the thermometer, and swallowing the glass and mercury.

Taking Temperature

See Table 7-3 (p. VII-17) for instructions on cleaning and sterilizing thermometers.

ORAL METHOD: When taking an oral (mouth) temperature, this procedure should be followed:

- Shake the column of mercury in the thermometer down to read about 96°F (35.5°C).
- Place the mercury end of the thermometer under the tongue and instruct the patient to keep his lips tightly closed but not to bite the thermometer with his teeth. The bulb of mercury should touch the base of the tongue.
- Leave the thermometer in the patient's mouth for three minutes before removing and reading it.
- The normal mouth temperature is 98.6°F (37°C).

RECTAL METHOD: Although a rectal temperature is the most accurate, the method is used chiefly when the conditions previously mentioned make the oral method impractical, or when a high degree of accuracy is required. A thermometer used for taking a rectal temperature has a short blunt mercury tip to prevent injury to the rectum.

When taking a rectal temperature, this procedure should be followed:

- Lubricate the mercury tip of the rectal thermometer with a lubricating jelly.
- Insert the thermometer about 1½ inches into the rectum.
- Hold the thermometer in place for three minutes.
- Wipe the thermometer free of the lubricating jelly, going from the top of the thermometer toward the mercury before attempting to read it.
- 99.6°F (37.5°C) is the normal body temperature by rectum.

AXILLARY METHOD: The least accurate temperature reading is from the axilla (armpit) area, because the temperature of the surface of the body is being measured. When taking an axillary temperature, this procedure should be followed:

- Make sure that the patient's armpit is dry.
- Place the bulb of the thermometer in the center of the patient's dried axilla, with the opposite end slanting toward the body.
- For seven minutes, keep the patient's arm close to his body to hold the thermometer in place.
- 97.6°F (36.4°C) is the normal axillary (armpit) temperature.

Reading a Thermometer

Clinical thermometers can be calibrated to the Fahrenheit (F) scale or the Centigrade (C) scale. The Fahrenheit thermometer usually ranges from 92°F to 108°F, while the Centigrade ranges from 35.5°C to 41°C. Comparable readings of the Fahrenheit and Centigrade Scales can be seen in Table 7-1.

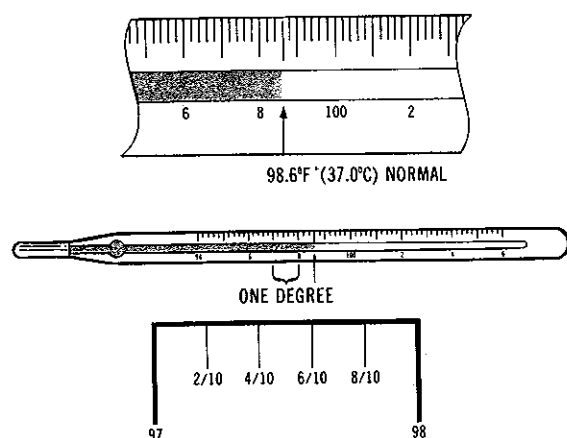


Fig. 7-1. Thermometer calibration.

Notice the scale (calibrations) on the thermometer shown in Fig. 7-1. The space between each long line on the scale designates one degree. There are four short lines between each of the long lines which divide the degree into fifths. Each fifth designates two-tenths (0.2) of a degree. On the Fahrenheit thermometer between the 98-degree and 99-degree lines, there is a long line marked with an arrow that indicates the normal oral body temperature of 98.6°F or 37°C.

When reading a thermometer, this procedure should be followed:

- Hold the thermometer horizontally so that the numbers are on the bottom and the lines (calibration) at the top.
- Hold the thermometer at eye-level and rotate the thermometer slowly between the thumb and index finger.
- Observe the area between the lines and the numbers until the mercury is seen. Notice where the mercury ends.
- Rotate the thermometer to see which number is closest to the end of the column of mercury. Then rotate the thermometer slightly to see how many lines the mercury extends past that whole number.
- The temperature reading is the digit (whole number) marked by the long line, plus two-tenths, four-tenths, six-tenths, or eight-tenths

Table 7-1
Comparable Readings—Fahrenheit and Centigrade Scales

Fahrenheit (F)		Centigrade (C)
108°	Usually Fatal	{ 42.2°
107	Critical Condition	{ 41.7
106		{ 41.1
105		{ 40.6
104	High Fever	{ 40.0
102		{ 39.4
103		{ 38.9
101	Moderate Fever	{ 38.3
100		{ 37.8
99		{ 37.2
98.6	Healthy (Normal) Temperature in Mouth	{ 37.0
98	Subnormal Temperature	{ 36.7
97		{ 36.1
96		{ 35.6
95		{ 35.0

of a degree. (See Fig. 7-2.)

- After reading and recording the temperature, shake the mercury down by holding the thermometer firmly between the thumb and index finger, at the end that does not contain the mercury. Flick the wrist with quick, short, jerking movements. After reading, the thermometer should be washed in a lukewarm (water) solution, rinsed well, and wiped with an alcohol sponge before it is used again. If an ill patient with an elevated temperature is kept under continuous observation, the same thermometer should be used throughout the episode.

The Pulse

The pulse is the alternate contraction and expansion of an artery, corresponding to the heartbeat.

The pulse rate is taken most easily at the wrist. When taking a pulse rate, this procedure should be followed:

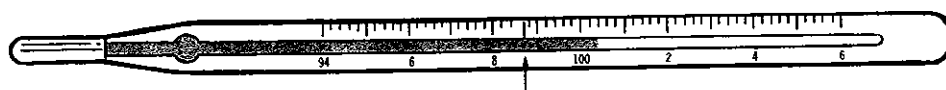


Fig. 7-2. Sample thermometer reading.

- Place the middle fingertip over the artery on the thumb side of the patient's wrist.
- Move your finger until the pulsebeat is located and exert enough pressure to make the pulse distinct, but not blotted out.
- *Never* use your thumb because it has a pulse that might be confused with that of the patient.
- When the pulse is felt plainly, count the beats for one minute.
- Record the character of the beat whether strong or feeble, rapid or slow, and regular or irregular. (See Table 7-2 for normal pulse rates and terms.)

Table 7-2
Normal Pulse Rate

60-70	Men
70-80	Women
80-90	Children over seven years
80-120	Children from one to seven years
110-130	Infants

Pulse Classified in Adults	
60 & below	Slow or subnormal
60-80	Normal (men, women)
80-100	Moderate increase
100-120	Quick
120-140	Rapid
140 & above	Running (hard to count)

The pulse is slower when the patient is at rest and increases with exercise or other activity, as after a heavy meal or during a fever. If the pulsebeat cannot be located at the wrist, it can be counted at the temple, just in front of either ear.

Respiration

Respiration is the inhaling of air and the exhaling of gases (or air) from the lungs. A respiration is one breath taken-in and one breathed-out.

The normal respiratory rate, usually between 14 and 20 per minute, will vary under certain conditions. Exercise, activity, and fever as a rule will increase the rate. When a person is at rest, the rate will decrease. It is more important to observe the *kind of respirations*

than to count the number; for example, shallow, labored, stertorous (snore-like) breathing. It is best to observe or count respirations when the patient is unaware of it.

Blood Pressure (B/P)

Blood pressure readings are obtained by using a sphygmomanometer (see Figs. 7-3a and 7-3b) and a stethoscope to measure the force exerted by the blood on an artery in the arm. This procedure is one requiring accuracy and skill that are acquired through practice.

Blood pressure varies in the healthy person due to many factors. Emotional and physical activity have an effect on the blood pressure. During periods of physical rest and freedom from emotional excitement, the pressure will be lowered. Age in itself will be a factor in elevating blood pressure.

An injury or internal bleeding can result in a great loss of blood, which causes a lowered blood pressure. Shock is marked by a dangerous drop in B/P.

Blood pressure is expressed in millimeters of mercury. The *systolic pressure* (as the heart beats or contracts) is recorded above a line and the *diastolic pressure* (as the heart rests) is recorded below the line. In the blood pressure recording 120/80: the *systolic pressure* is 120 and the *diastolic pressure* is 80. These are within normal range. A slight variation from this value is insignificant.

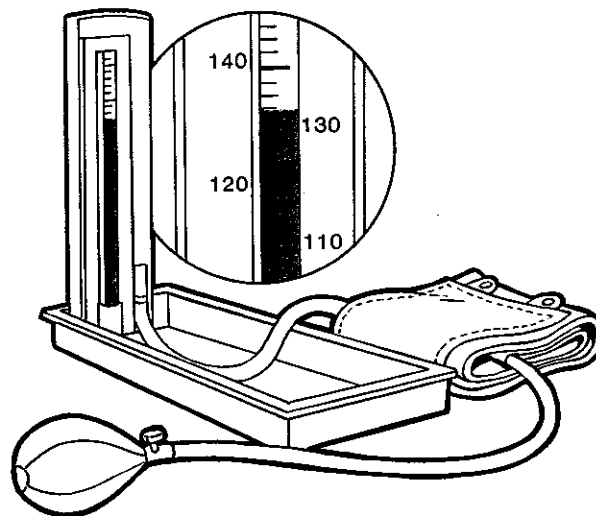


Fig. 7-3a. Sphygmomanometer, mercury (box type), for taking blood pressure.

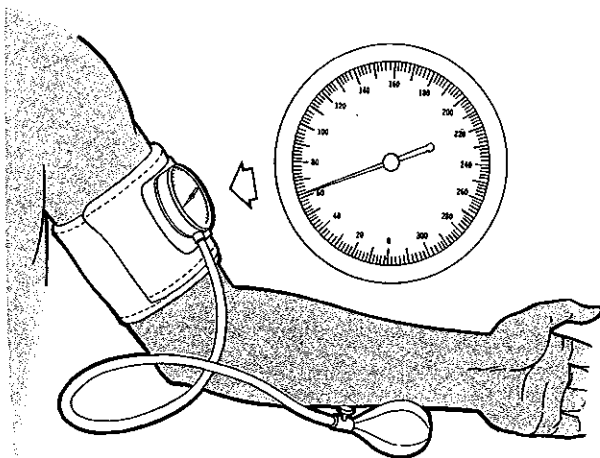


Fig. 7-3b. Sphygmomanometer, aneroid (dial type), for taking blood pressure.

When taking a blood pressure, the patient should lie or sit with the arm supported that is to be used. Measurements may be made in either arm. When taking a blood pressure, this procedure should be followed:

- Explain the procedure to the patient to prevent excitement and anxiety.
- Place the cuff around the patient's arm, above the elbow. (See Fig. 7-4.) Check to see that the valve on the bulb has been fully closed (turned clockwise).
- Before inflating the cuff with air, find the arterial pulse on the inner side of the bend of the elbow.
- Keep fingers on this pulse and inflate the cuff by pumping on the rubber bulb until the pulse disappears.
- Place the earpieces of the stethoscope in the ear (with the earpieces directed up) and position the disc of the stethoscope over the space where the pulse was felt.
- Hold the disc of the stethoscope snugly in position over the pulse with one hand, while pumping the cuff with the other.
- Pump the cuff until the mercury on the scale of the mercury apparatus, or the needle on the gauge of the aneroid apparatus, is about 30 points above the systolic pressure that was obtained previously, by noting when the arterial pulse was felt to disappear.

- Loosen the valve slightly and permit the pressure to drop *slowly* while listening carefully for the sound of the blood pressure. Soon a definite beat will be heard, but it will be quite faint. If this beat is missed or if there is a question as to the reading where it started, the valve should be tightened again, pumped again once more, and one should listen for the sound. The number at which the first sound is heard is the *systolic pressure*. This number should be recorded.

- Continue slowly to deflate the cuff until the last sound is heard. The reading at which the sound disappeared is the *diastolic pressure*.

- Open the valve completely and allow the cuff to deflate.

If there is difficulty obtaining the blood pressure reading, it may be due to the valve being opened too much, causing the pressure to drop too rapidly; or the attendant might have expected a louder sound through the stethoscope.

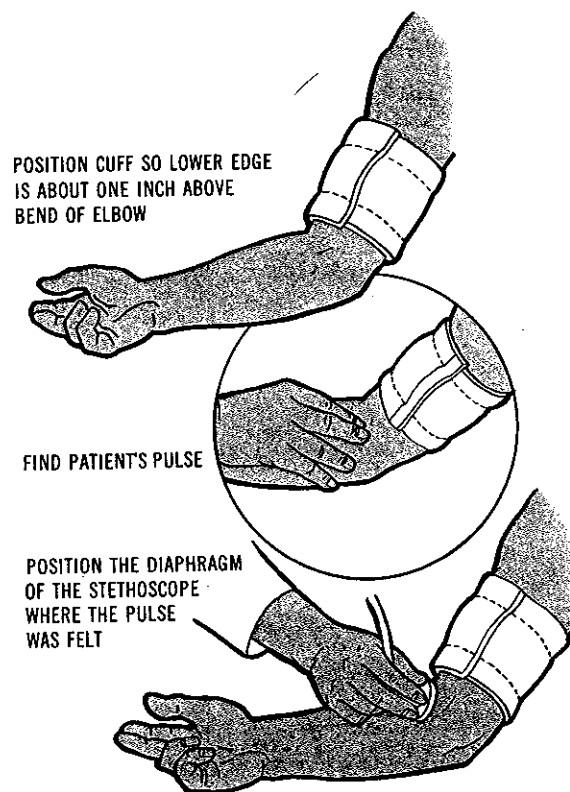


Fig. 7-4. Taking blood pressure—position of cuff and stethoscope on patient's arm.

Levels of Consciousness

Consciousness is controlled by the brain and the involuntary nervous system. There are four levels of consciousness: alertness, restlessness, stupor, and coma.

The alert patient is well aware of what is going on and reacts appropriately to the factors in the environment. Facilities to supply his body needs will be requested, such as a urinal or bedpan, medication for pain, or a drink of water.

The restless patient is extremely sensitive to the factors in the environment, and exaggerates them. The patient may scream with moderate pain. He may call for the urinal, but is unable to wait until it arrives. He wants constant attention, and moves about in bed continuously and thrashes from side to side.

The stuporous patient lies quietly in bed, seems to be sleeping and requests nothing. Even when awakened, there is a quick return to a sleeplike state which makes feeding difficult. The patient may be incontinent, exhibiting involuntary loss of urine or feces.

The degree of stupor is determined by the stimuli required to awaken the patient. If awakened by a voice, the level of consciousness would be described as light stupor. If awakened only by pressure, such as tapping him lightly on the side of the face or by applying pressure over the eyelids, the level would be described as deep stupor.

The patient in a coma lies quietly in a bed, appears to be sleeping, and cannot be awakened. The patient will not ask for a drink or urinal, he cannot swallow, and may be incontinent or may retain urine. Pressure over the eyelids, strong sensations, or calling by name will not awaken the patient.

What Levels of Consciousness Mean

The alert patient is one whose brain is functioning adequately.

The restless patient's brain is extremely active in its attempt to meet the body's needs. Restlessness often is observed in the following patients:

- Anyone frightened, worried, or in pain because the brain is hyperactive in preparing the body to fight or flee.
- Anyone hemorrhaging, because the brain is receiving a lessened or inadequate blood supply.
- Those with a head injury or brain tumor, if the increased pressure on the brain is cutting off the blood supply to a part of the brain.
- A person who has suffered a heart attack, because the weakened heart is not pumping enough blood around the body and to the brain.
- Those in shock, when blood pressure is so low that there is insufficient force to pump blood to the brain.

Restlessness is an early sign of the preceding conditions. When the brain is unable to correct the conditions that cause restlessness, it will be followed quickly by stupor, coma, and death.

Observation of the level of consciousness means that an attempt is made to awaken the sleeping patient regardless of whether it is in the middle of the day or night, so it can be observed whether he really is sleeping, or whether he is in a stupor or coma.

CARE OF BED PATIENT

A patient who is unable to maintain his own personal hygiene must be aided totally or partially. Personal hygiene includes care of the mouth, teeth, skin, and hair.

Oral Hygiene

Teeth should be brushed by the patient, if possible. Care should be taken to protect the bed during the procedure.

If it is necessary to brush the patient's teeth, this procedure should be followed:

- Remove the pillow and turn the patient's head to the side toward the attendant.
- Place a towel under the side of the head and chin to protect the bedding.
- Brush the patient's teeth, then have him rinse his mouth with water and expectorate into an emesis (kidney) basin. Teeth should

be brushed after meals, at bedtime, or as often as necessary.

Removable dentures are best cleaned when brushed under tepid water. They should be cleaned at least twice daily. Dentures should be removed from unconscious or confused patients and placed in a container filled with water.

Bed Bath

If able, the patient should take his own shower or tub bath. If this is not possible, he should complete as much of his bath as he can. The room should be warm and free of drafts. If the patient needs assistance to bathe, a bath blanket should be placed over the top linen. When bathing a patient, this procedure should be followed:

- Wash the patient's face, neck, and ears; then dry.
- Wash the patient's arms, giving special attention to the axilla (armpit). Rinse well and dry.
- Next wash the patient's legs and back, including the area around the anus.
- Have the patient wash the genitalia, if able.
- Change the water as often as necessary.
- Give the patient clean pajamas and bed linen.

Bedmaking

The most important part of making the patient's bed is to have it smooth and free of wrinkles. This means the bedclothes under the patient must be pulled tight, and be anchored well under the mattress to keep them tight. Pillows should be used for comfort, support, and to maintain correct body posture. Top covers should be lightweight and adequately warm. They should be long enough to cover the patient's shoulders and provide adequate toe space. The covers should be fastened securely at the bottom of the bed.

To protect the mattress, a waterproof sheet may be placed lengthwise across the middle of the bed, on top of the bottom sheet, and firmly tucked-in on both sides. The drawsheets, placed over the waterproof sheet, also should be tucked-in firmly on both sides to ensure a smooth bed. A drawsheet may be made by placing an ordinary sheet lengthwise across the middle of the bed. Replacing a soiled drawsheet is less fatiguing to the patient than having the full bottom sheet changed.

SUTURING

Ordinarily, the advice to the attendant regarding suturing of wounds would be—DO NOT ATTEMPT IT. However, if many days are to elapse before the patient can be seen by a physician, the attendant should be knowledgeable in the various suture procedures and materials. Suturing is a skill that must be learned through doing, under supervision. There are many complications that can occur if suturing is performed by an inexperienced person. Only under extreme circumstances should suturing be attempted unless the attendant has had specific training in wound closure. It would be more appropriate to use adhesive butterfly strips when possible. (See p. III-14.)

Before discussing the method of suturing, some of the *contraindications* to wound closing should be delineated:

1. If there is reddening and edema of the wound margins, established infection manifested by discharge of pus, persistent fever or toxemia—*do not close the wound*. If these signs are minimal, the wound should be allowed to "clean up." This process may be hastened by warm, sterile water dressings or irrigations with sterile water or saline.
2. If the wound is a large gaping one of soft tissue, *leave it unsutured*, for it is certain to contain myriads of bacteria and suturing would prevent the drainage of the pus that would develop. Delayed primary closure is performed, preferably within three to seven days after injury, upon the indication of a healthy appearance of the wound. Healthy muscle tissue which is viable (capable of living) is evident by its color, consistency, blood supply, and contractility. Muscle which is dead or dying is comparatively dark, mushy, and often malodorous. It does not contract when pinched nor does it bleed when cut. If this type of tissue is evident, make every effort to bring the patient under the care of a physician. The wound should be lightly packed with vaseline gauze and dry sterile gauze which has been fluffed with forceps.
3. If the wound is deep, consider the support of the surrounding tissue and if there is not enough support to bring the deep fascia together, *do not suture the surface* because dead

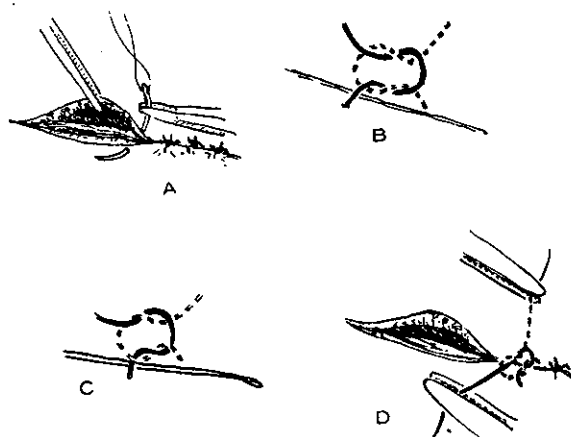


Fig. 7-5., 7-6. Technique of suturing a wound.
A, Method of passing interrupted sutures;
B, Tying a nonslip, square knot;
C, Tying a granny knot which will slip;
D, Suturing a wound with interrupted,
square-knot-sutures.

(hollow) space will be created below. In this type of wound which is generally gaping, muscles, tendons, and nerves most probably will be involved. Only a surgeon should attempt this type of wound closure for reconstructive surgery becomes necessary if it is incorrectly done.

If the wound is relatively small, shallow, freshly incurred, free from dirt, foreign bodies, and signs of infection, the attendant should take steps to close it if a physician's services cannot be anticipated within a few hours.

Materials for Closing a Wound

There are several different materials used for closing wounds. Sutures may be divided into two classes—absorbable and nonabsorbable. *Absorbable sutures* are absorbed by the tissue fluids and are usually used in the deeper layers of the wound. In this class are plain catgut or chromicized catgut (treated so as to be absorbed more slowly than plain gut). Nonabsorbable sutures are not absorbed by body tissues and are usually used to close the skin, although in some techniques for hernia and fracture repairs they are used beneath the surface. They consist chiefly of silk, cotton, and synthetic material (dermol, nylon, etc.), or stainless steel wire. In case of emergency, ordinary sewing thread may be used after it has been boiled or autoclaved.

Needles used in suturing are either round or cutting, straight or curved. They vary in length and thickness, also in shape for different

types of suturing. In suturing the skin, the cutting type is usually preferred; a round type is usually used for deep sutures or when suturing near blood vessels.

Preparation of Materials and Patient

All instruments to be used should be checked and be sterile, appropriate sterile suture material selected, a good light provided and the position of the patient on the table planned so that access to the wound will be unhampered. The wound should be cleansed with povidone iodine skin cleanser and sterile dressings. Sterile drapes should be used if they are available; if not, the area surrounding the wound should be covered with sterile material such as towels and only that part of the anatomy left exposed which is to be sutured.

The attendant should scrub his hands and forearms with soap and water for 15 minutes, clean his fingernails thoroughly, and dry with a sterile towel. He should then put on sterile gloves. See p. VII-18+.

Some type of anesthesia will ordinarily be necessary during the process of closing the wound. Using a sterile syringe and needle, inject lidocaine hydrochloride injection, 1% into the prepared skin just back from the raw wound edges. (See pp. VI-29 and VII-10.)

Technique for Suturing

The outline of the wound should be carefully studied so that when the suturing actually starts the corresponding parts may be accurately apposed. Puckering, due to faulty apposition of edges, places undue tension on the tissues and creates an unsightly scar which may interfere with the function of the part.

The suture needle should enter the skin from $\frac{1}{4}$ to $\frac{1}{2}$ -inch from the edge of the wound, depending upon the amount of tension which will be placed on the wound edges (the greater the length and depth of the wound—the greater the tension necessary). Then arc under the opposite edge and reenter the surface at the same distance from the edge, i.e., $\frac{1}{4}$ to $\frac{1}{2}$ -inch. The suture is then tied, using a square knot, with just enough tension to bring the wound edges together gently, after which the ends are cut $\frac{1}{2}$ -inch from the knot. The remaining stitches are inserted in the same manner as described above and, depending upon the amount of suture

tension on the wound edges, at a distance of $\frac{1}{2}$ to $\frac{3}{4}$ of an inch apart. (See Fig. 7-5.)

Care must be used to handle the tissues as delicately as possible to reduce additional injury upon tissue already damaged.

Suture Removal—All skin sutures are usually left in place from five to seven days, depending upon the location and amount of tension upon the wound edges. They must be removed aseptically to prevent infection being implanted along the wound tract. This is done by pulling one edge of the thread taut with a pair of sterile tweezers and cutting the thread with sterile scissors or knife point between the place where the thread is grasped and where it enters the skin. It should be cut below that portion originally exposed to the surface, by pulling rather firmly and upward with the thumb forceps. The thread is then removed by pulling gently on the part held by the tweezers. In this way the air-exposed and likely contaminated thread is not pulled through the tissues.

ADMINISTERING MEDICATIONS

Safe Effective Procedures

The hands should be washed before any medication is prepared. Before administering a medication, the patient should be asked about any known allergy to it.

In administering medications, the label on the container should be checked three times: (1) when the bottle is taken off the shelf, (2) before any medication is removed from the container, and (3) when the bottle is replaced on the shelf.

Before administering any medications, the attendant should know the therapeutic action, side effects, cautions, and contraindications to the drug. The attendant should have read the drug monographs. The package insert also is a good source of information about the drug.

The following points should be remembered when administering medicines:

Always give medicine on time.

Read the label three times before giving medication (see above).

Record the date and time of day, name of the medicine, the amount given, and the route of

administration. Do not record these until the drug actually has been taken.

A suitable container such as a disposable medicine cup should be used to administer capsules, tablets, and liquids. Capsules and tablets should be poured into the bottle cap, then placed into the container. Solid medications should not be contaminated by placing them in the dispenser's hands.

Medications to be given more than once a day should be spaced at a reasonable interval. For example, four times a day: at 0800—1200—1600—2000. Antibiotics, if ordered four times a day, should be administered every six hours: at 2400—0600—1200—1800. This is done to help maintain an adequate level of the antibiotic in the system at all times.

Medications ordered before meals should be given one-half hour before the meal. Medications administered to induce sleep usually are given 30 minutes before sleep is desired. One should be careful in administering hypnotics to avoid having the patient asleep when he should be awake.

Cough syrups should not be diluted. Water should not be given for 15 minutes after any cough syrup because it will diminish the soothing effect of the medication.

Routes for Administering Medications

Oral

The easiest and generally the safest and most desirable way to administer a medication is by the oral route. Generally, absorption into the bloodstream begins to reach a therapeutic level in about 30 to 90 minutes and lasts four to six hours, depending on the characteristics of the drug and the formulation. Taking the medication on an empty stomach usually will cause more rapid absorption than when taken after a meal.

Tablets or capsules are swallowed more easily by most persons if placed on the back of the tongue, then washed down with a suitable fluid (usually water).

Sublingual

Many soluble drugs are absorbed readily when placed in contact with the sublingual mucosa under the tongue. Substances that may

be destroyed by the digestive juices, or those urgently needed for self-administration as soluble nitroglycerin tablets, may be given this way.

Rectal

Drugs may be given by rectum as liquids or suppositories. Generally, drugs administered by rectum for a systemic effect are absorbed erratically and only should be used as an alternative route.

Vaginal

Most medication by the vaginal route is for local effect and the drug used may be in the form of a suppository, powder, gel, foam, or vaginal douche. A medication may be given by this route for a systemic effect because absorption does occur through the vaginal mucosa; but this usually is not a route of choice.

Intranasal

Drugs may be given intranasally for either local or systemic action. Nose drops or sprays as phenylephrine usually are applied to the nasal mucosa for their vasoconstrictive effect.

Subcutaneous (Under the Skin)

Small quantities of fluid medication can be injected easily subcutaneously. This route is used when rapid absorption is desired, when the patient cannot or will not swallow a drug, is vomiting, or the action of the medication would be destroyed by secretions of the stomach or intestine. The usual sites of subcutaneous injections are the extensor surfaces of the upper arms, the back, and the lateral aspects of the thighs. The maximum effect of the injection usually occurs in about 30 minutes.

When giving a subcutaneous injection, this procedure should be followed:

- Assemble the equipment
 - Disposable syringe
 - Disposable 25-gauge, one-half inch needle
 - Medication
 - Prepackaged alcohol sponges
- If the medication is in a multiple-dose vial, clean the rubber diaphragm on the vial with a prepackaged alcohol sponge. If the medication is in an ampul, which has been previously filed (colored band), remove the top of the glass

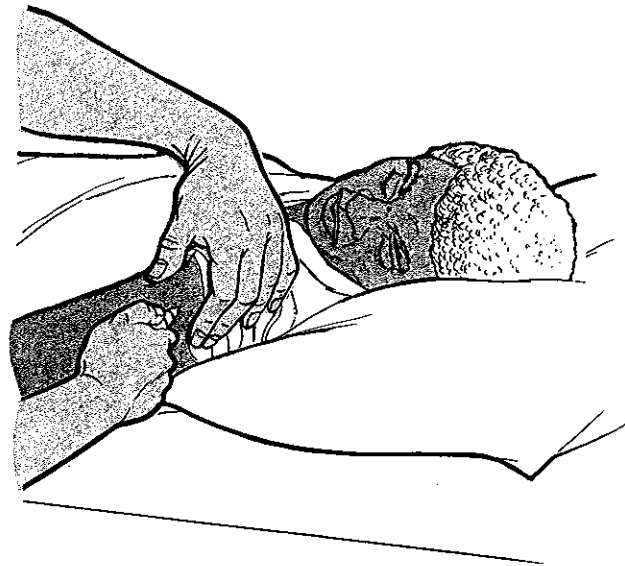


Fig. 7-7. Site of a subcutaneous injection.

ampul by wrapping a piece of gauze around the top part and break it off. If the ampul does not have a colored band, file the neck of the ampul and then break off the top.

- Remove the guard from the needle without touching the needle. If the medication is in a vial, inject into the vial an amount of air equal to the amount of drug to be withdrawn to help facilitate withdrawal of the medication. Withdraw the correct amount of medication. Point the needle up and expel any air in the syringe.
- Select an area on either arm, just below the shoulder on the outer aspect, and cleanse the skin with a prepackaged alcohol sponge. (See Fig. 7-7.)
- Grasp the skin between the thumb and forefinger, and firmly and quickly insert the needle at the prescribed angle. (See Fig. 7-8.) Draw back gently on the plunger. If no blood appears

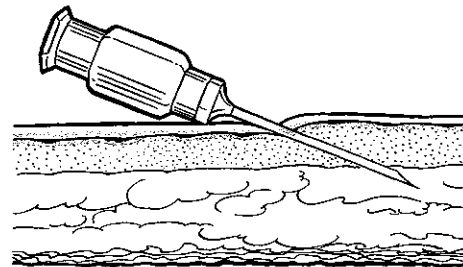


Fig. 7-8. Subcutaneous injection.

in the syringe, inject the medication and withdraw the needle. If blood appears, redo the procedure at a new site with sterile equipment.

- Rub the site of injection with an alcohol sponge.
- Replace the needle in the needle guard, and break the needle and the tip of the syringe.
- Discard the used equipment.

Intramuscular (Into a Muscle)

Because of the relative vascularity of muscle, medications injected intramuscularly (IM) are absorbed more quickly than those given subcutaneously. A maximum effect is obtained in about 15 minutes. Also, this route may be used when a medication irritates the subcutaneous tissue or to obtain prolonged action, as in the injection of aqueous procaine penicillin.

When giving an intramuscular injection, this procedure should be followed:

- Assemble the equipment
 - Disposable syringe
 - Disposable needle, 1½-inch length, 20- or 22-gauge, depending upon the thickness (viscosity) of the medication
 - Medication
 - Prepackaged alcohol sponges
- If the medication is in a multidose vial, clean the rubber diaphragm on the vial with a pre-

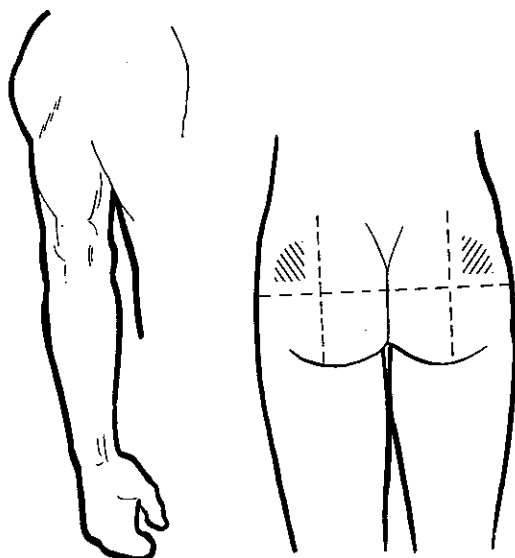


Fig. 7-9. Sites of an intramuscular injection.

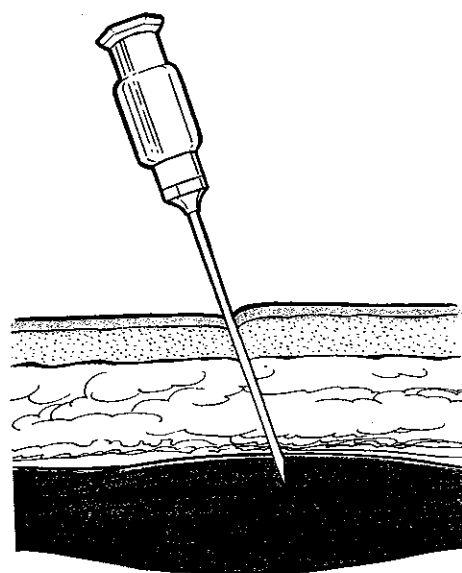


Fig. 7-10. Intramuscular injection.

packaged alcohol sponge. If the medication is in an ampul which has been previously filed (colored band), remove the top of the glass ampul by wrapping a piece of gauze around the top part and break it off. If the ampul does not have a colored band around it, score the neck of the ampul with the enclosed file.

- Remove the guard from the needle without touching the needle. If the medication is in a vial, inject into the vial an amount of air equal to the amount of drug to be withdrawn to help facilitate withdrawal of the medication. Withdraw the correct amount of medication. Expel any air from the syringe.
- Select a site for the injection. The preferred site is in the outer upper quadrant of either buttock. If the buttocks can't be used, the anterior-lateral aspect of either thigh or the upper third of the outer side of the upper arm (deltoid muscle) can be used. (See Fig. 7-9.)
- If the buttock is the injection site, stretch the skin with the thumb and forefinger and insert the needle at a right angle to the skin, deeply enough to penetrate the subcutaneous fat and enter the muscle. (See Fig. 7-10.) If the upper arm is the injection site, compress the tissue between thumb and the forefinger and direct the needle in a straight course.
- Draw back on the plunger of the syringe. If no blood appears, insert the medication and

withdraw the needle. If blood appears, repeat the procedure at another site using new sterile equipment.

- Rub the site of the injection with an alcohol sponge.
- Replace the needle in the needle guard and break the needle and the tip of the syringe.
- Dispose of the used equipment.

CAUTION: Great care must be used if i.m. injection is given in buttock to avoid nerve-damage. Must select outer, upper quadrant for injection site.

Intravenous (IV)

Intravenous administration refers to the introduction of sterile solutions directly into a vein. (See Fig. 7-11.) Giving a large quantity of solution is referred to as an *infusion*.

Injection of sterile medication into a vein is indicated when rapid absorption and action is desired. An infusion of a sterile solution is started when fluids cannot be taken by mouth.

Veins of the inner aspect of the elbow generally are used for the administration of intravenous solutions. These veins are easy to reach, tend to be quite superficial, are fairly large, and are well supported by muscular and connective tissue.

Veins on the back of the hand and at the ankle sometimes are used, but they are more difficult to enter and tend to roll easily.

Either arm may be used for intravenous therapy. If the patient is right-handed and both arms appear to be equally usable, the left arm is selected usually so that the right arm is free for the patient's use.

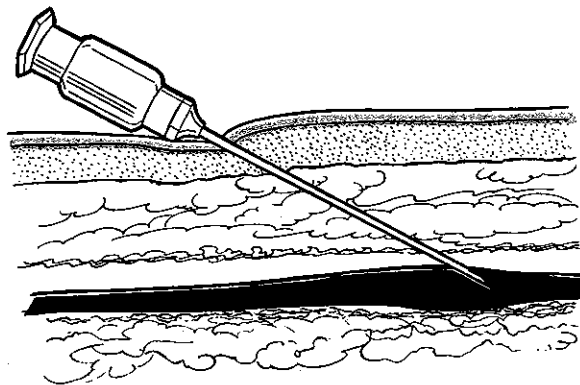


Fig. 7-11. Intravenous injection.

Always make sure that sterile technique is used when a vein is being entered. When performing an intravenous infusion, this procedure should be followed:

- Assemble equipment.
 - Container of parenteral fluid or IV solution
 - Administration set
 - Needle (20- or 21-gauge, 1½ inch or 2 inches)
 - Prepackaged alcohol sponges
 - Tourniquet
 - Stand for IV container
 - Arm board
- Remove the protective covering and the rubber diaphragm from the solution's bottle.
- Remove the administration set from the package. Remove the protective cover from the spike, and insert the spike into the administration site of the bottle.
- Remove the protective cover from the end of the administration set. Invert the bottle so that the solution flows into the drip chamber and through the tubing.
- When the tubing is completely full of solution, close the slide clamp.
- Place the needle onto the end of the tubing, being careful to maintain aseptic technique. (Some administration sets come with the needle already attached.)
- Place the standard for the IV container in a convenient position near the bed.
- Cut several pieces of one-half inch tape.
- Place the patient's arm on a board with a tourniquet under the arm, about 1½ inches above the intended site of entry. Secure the arm to the board with a bandage.
- Apply the tourniquet about two inches above the site of the infusion and direct the ends away from the site of the injection.
- Ask the patient to open and close his fist. Observe and palpate for a suitable vein.
- Cleanse the skin thoroughly with an alcohol sponge at and around the site of the injection.
- Use the thumb to retract down on the vein and the soft tissue about two inches below the intended site of injection.

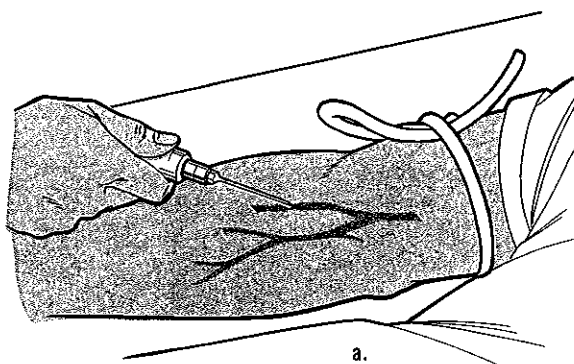


Fig. 7-12a. Site of an intravenous injection.

- Hold the needle at a 45° angle with the bevel up in line with the vein (see Fig. 7-12a) and directly alongside the wall of the vein at a point about one-half inch away from the intended site of venipuncture. Allow the fluid to enter the needle and drip out. (*This will remove all the air from the tubing, in order to prevent an air embolism.*) Then, clamp the tube and proceed.
- Insert the needle through the skin, lower the angle of the needle until nearly parallel with the skin, following the same course as the vein, and insert it into the vein.
- When blood comes back through the needle, open the pinch clamp and insert the needle three-fourth inch to one inch further into the vein.
- Release the tourniquet.
- Open the clamp on the infusion tube.
- Tape the needle securely in place. (See Fig. 7-12b.)
- *Regulate the rate of flow (drops per minute) carefully.* Observe at frequent intervals to pre-

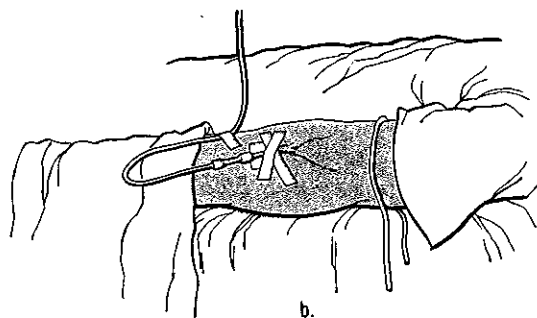


Fig. 7-12b. Intravenous injection procedure.

vent variance in flow and to see that it is stopped before all the solution is administered (*to prevent air from entering the vein*). The number of drops per ml will vary with different administration sets. This information will be found on the administration set packaging. For example, if the set delivered 15 drops per ml, and it is desired that 1000 ml of solution be administered in a five hour period, the rate of flow would be about 50 drops per minute.

- Anchor the arm on an armboard.
- Observe frequently the site of the infusion to detect puffiness of tissue (indicating swelling from infiltration of the solution into the tissues). *If present, discontinue the intravenous infusion and restart in another vein, using another sterile needle.*

Eye Medications

The eye is a delicate organ, highly susceptible to infection and injury. Although the eye is never free of microorganisms, the secretions of the conjunctiva have a protective action against many that cause disease. For the maximum safety of the patient, equipment used and solutions and ointments introduced into the conjunctival sac (inside of eyelids) should be sterile.

Because direct application should not be made onto the sensitive cornea, medications intended to act upon the eye or the eyelids should be instilled onto the lower conjunctival sac.

Exposing Lower Conjunctival Sac

When exposing the conjunctival sac to administer eye medications, this procedure should be followed:

- Have the patient look up.
- Place a thumb near the margin of the lower lid, immediately below the eyelashes.
- Exert pressure downward over the bony prominence of the cheek.
- As the lower lid is pulled down and away from the eyeball, the conjunctival sac is exposed.

Instilling Eye Drops

Sterile eye drops are supplied in either a plastic bottle fitted with a device which will



Fig. 7-13. Instilling eye drops.

dispense drops when inverted and squeezed, or in a bottle fitted with a sterile dropper. It is recommended that this procedure be followed to administer eye drops:

- The person administering the drops should wash his hands prior to instillation of the eye drops. If the patient's eyes are discharging, sterilized cotton balls should be in readiness to cleanse the discharge from the lids. The cotton balls should be moistened with sterile ophthalmic irrigating solution, or sterile sodium chloride solution 0.9% warmed to about 100°F (37.7°C). Several absorbent tissues also should be kept in readiness.
- Cleanse the discharge, using the moist cotton balls, by wiping the eyelids from the inner to the outer side. Use a new cotton ball for each stroke. If no discharge is present, this step (and the cotton balls) may be omitted. **CAUTION:** *Never use dry cotton on the eye.*
- Hold the dropping device over the lower eyelid, parallel to the eye but with the dispensing hand resting upon the patient's forehead, so that the dropping device is elevated at about a 45° angle over the lower lid. (See Fig. 7-13.)
- Take absorbent tissue in the other hand and gently draw down the lower lid by placing fingers on the cheek.

- Be sure that the patient is looking up.
- Drop the prescribed number of drops into the pocket formed by the lower lid. Do not allow the dropping device to touch any part of the eye.
- Do not allow drops to fall directly onto the cornea of the eyeball because of the danger of possible injury to it or because of any unpleasant sensation it may create.
- Instruct the patient to close his eye gently and rotate the eyeball to spread the medication evenly. **CAUTION—***Use only sterile medication prepared for eye use.* Prior to use, check for an expiration date on the labels.

Application of Eye Ointment

Before application of an ointment, the eyelids and the eyelashes should be cleansed of any discharge, as previously described under "instillation of eyedrops." When applying ointment to the eye, this procedure should be followed:

- Hold the tube in an almost horizontal position to control the quantity of ointment applied and to minimize the chance of touching the eyeball or the conjunctiva with the tip. (See Fig. 7-14.) One-half inch of the ointment should be extruded from the eye ointment tube and dis-

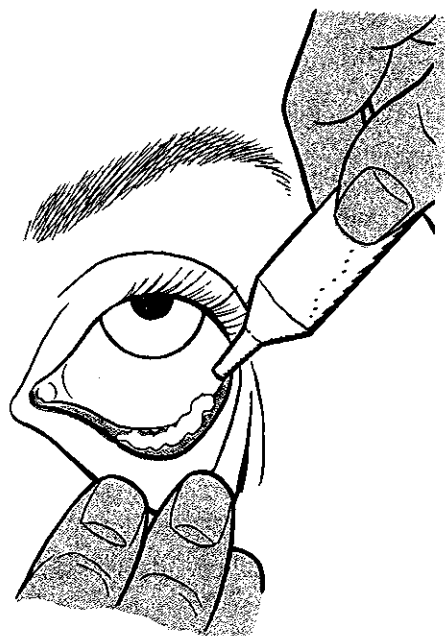


Fig. 7-14. Application of eye ointment.

tributed in the lower conjunctival sac, after exposing the inner surface of the lower lid (by applying two fingers to the cheek).

- Following the application, instruct the patient to close the eyelids and move the eyes. This will spread the ointment under the lid and over the surface of the eyeball.

Conjunctival Irrigation

A sterile ophthalmic isotonic irrigating solution in a disposable "squeeze" bottle should be used for irrigation. The following procedure should be followed:

- Cleanse any discharge from the eye, as previously described under "instillation of eye drops."

Separate the eyelids, and gently squeezing the bottle of irrigating solution, direct the flow from inner to outer canthus (corner of the eye). Use only sufficient force to cause a continuous flow of the solution.

- Wipe the cheeks with a towel or absorbent tissue.

Ear Medications

To prevent discomfort, medications for the ear should be warmed before instilling them. Do *not* overheat. Eardrops can be instilled best if the patient lies on his side with the ear uppermost to be treated. Before instilling eardrops, it may be necessary to use a cotton-tipped applicator to remove secretions from the external ear.

When administering eardrops, this procedure should be followed:

- Straighten the ear canal by gently pulling the earlobe upward and backward for adults; downward and backward for infants and small children.
- Hold the tip of the dropper or inverted dropper-bottle at the opening of the ear and instill a few drops of the medication. Do not insert the dropper or the dropper-bottle into the ear canal.
- Tell the patient to remain in this position for a few minutes to allow the medication to remain in contact with the surfaces of the canal and to prevent leakage of drops from the ear.

- Place a small amount of cotton loosely into the ear canal to keep the medication from draining out.

- Instruct the patient to remove the cotton any time after five minutes.

INFECTION CONTROL

Asepsis

Asepsis is the absence of disease-producing microorganisms called pathogens. Asepsis generally is divided into two descriptive forms: *medical asepsis* and *surgical asepsis*. Concepts of medical and surgical asepsis, as used in this book, are based on the following definitions.

Medical Asepsis

Medical asepsis refers to practices which attempt to reduce the number of disease-producing microorganisms and hinder their transfer from one person or place to another. The reason for observing medical aseptic practices is that the environment always has disease-producing microorganisms which in some individuals and under certain circumstances can cause illness. Therefore, reducing the number of germs and hindering their transfer will increase the safety of the environment. Any number of methods may be used to help achieve this aim: washing, boiling, sterilization, and disinfection are a few examples. If the patient and all those caring for him practice the precautionary measures intended to maintain medical asepsis, the potential will be lessened to spread the patient's disease to others aboard ship; and the patient will be protected against infection by a new organism.

To maintain medical asepsis, the following points should be remembered:

- Wash the hands after every contact with the patient, and with equipment and supplies used in caring for him.
- Provide disposable wipes. When he coughs or sneezes, instruct the patient to cover his mouth and nose, and to turn his head away from others.
- Provide the patient with the necessary articles to wash his hands after using the urinal or bedpan.

General Nursing Care

- All disposable articles taken from an infected patient's room should be placed in a double bag and sealed, using a strong adhesive tape. Infectious articles should be autoclaved or burned.

Surgical Asepsis

The term surgical asepsis is used to describe the techniques that protect the patient against infection. These techniques range from the complex technical ritual that is essential in the operating room, to the use of sterile dressings on minor wounds.

It is recognized that the skin is the first line of defense against microbial invasion. Therefore, in the handling of any wound (any break in the skin), the use of a sterile technique is mandatory. Hands should be washed and scrubbed thoroughly (see Handwashing, p. VII-17). Modification of this technique is acceptable in situations in which the chance of infection is reduced. Therefore, it is safe to eliminate gloves when doing minor dressings or giving injections. However, when doing minor dressings, sterile pick-up forceps should be used to handle sterile dressings.

To maintain surgical asepsis, the following points should be remembered:

- Sterile forceps may be used to handle sterile equipment and supplies.
- Sterile rubber gloves are put on after the hands are thoroughly scrubbed and dried (see p. VII-18).
- Only sterile articles should be placed on a sterile field.
- Do not allow sterile instruments or dressings to come in contact with anything but the wound.
- Avoid undue talking when treating wounds. Germs in the spray from the nose and throat can contaminate the materials and the wound itself.
- Avoid leaning across sterile materials or across an open wound. Lint or dust from a person's clothing can contaminate materials and the wound.

Disinfection and Sterilization

It is assumed that the ship's officer who is responsible for the sickbay and the care of the sick and injured will have had prior training

on the application and effectiveness of various methods for disinfection and sterilization. Thus, the information on disinfection and sterilization given here is brief but should serve as a useful reference. *Presterilized disposable surgical supplies and instruments should be used whenever possible to reduce the need for sterilization or disinfection aboard ship.*

The terms *sterilization* and *disinfection* have precise meanings and should be used appropriately in considering methods for preparing equipment, instruments, and surgical supplies. By *sterilization* is meant the complete destruction or removal of all forms of microbial life. This usually is accomplished by steam under pressure (autoclaving). *Disinfection* is the reduction of disease-producing microorganisms (generally including nonresistant spores), usually by chemical germicides or boiling water.

Some agents for disinfection or sterilization are listed in the *key* that accompanies the table on p. VII-17.

Where an autoclave (steam under pressure) is not available, or in those instances where disinfection is an acceptable method, the actual disinfection procedure and disinfectant to be used should be selected by the shipping company. The shipping company should consider the hazards of specific types of contamination to be encountered, as well as the scope of medical services provided, and the physical facilities aboard ship.

All objects or surfaces must be cleaned thoroughly prior to use of specific methods of sterilization or disinfection. The use of a liquid disinfectant for instruments, and rubber or polyethylene tubing that come in direct contact with patients, should be followed by flushing or rinsing with sterile distilled water and drying. *Whenever there is a choice, sterilization by steam under pressure (autoclaving) is preferable to disinfection.*

In the table that follows, specific recommendations are grouped by types of objects to be disinfected or sterilized, and by contaminating organisms. The *letters of the alphabet* designate specific procedures that are acceptable in each situation. It should be noted that certain agents tend to cause some materials to corrode or rust.

Table 7-3
DISINFECTION AND STERILIZATION

Objects	Disinfectant	Exposure
Smooth, hard surfaced objects: nondietary area dietary area	Aqueous phenolic solution at recommended use dilution. Sodium hypochlorite 100 ppm available chlorine.	
Instruments*:	Aqueous phenolic solution at recommended use dilution.	30 minutes
Thermometers*:	Aqueous phenolic solution at recommended use dilution. Rinse thoroughly before use.	30 minutes
Environmental surfaces: Walls, floors, tables, machine panels, etc.	Aqueous phenolic solution at recommended use dilution.	
Items contaminated by* Hepatitis virus:	Iodophor solution with minimum 0.5% available iodine.	30 minutes
Items entering skin** or mucous membranes:	Requires heat sterilization by steam under pressure.	30 minutes at 121°C (250°F)

* Must be cleansed with soap and water before disinfection.

** It is strongly recommended that all items which will be used to enter the skin or be in direct contact with mucous membranes (i.e., hypodermic needles, urinary catheters, suction catheters, etc.) be single-use, disposable items.

Handwashing

Washing hands often and thoroughly is one way to prevent the spread of disease.

It is important to wash hands:

- Before and after coming in contact with a patient.
- Before handling a patient's food or food tray.
- After handling a patient's articles, dressings, or any equipment or supplies used in his care.

- Before eating.
- After using the bathroom.

When washing hands, this procedure should be followed:

- Completely wet the hands and wrists under warm water.
- Apply soap (from a dispenser, if available, or a bar of soap). Spread the soap over the entire surface of the hands and wrists.

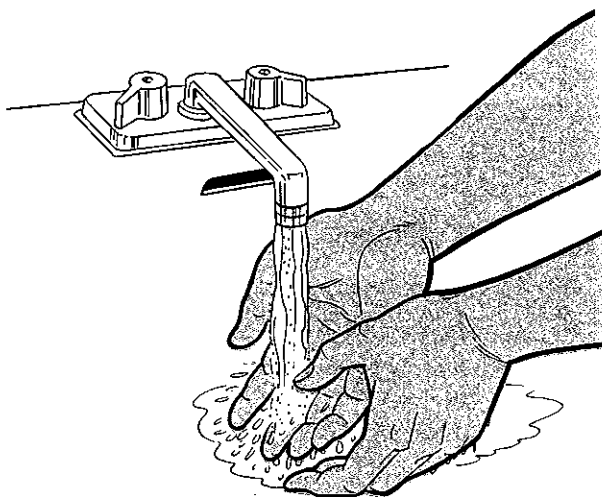


Fig. 7-15. Handwashing—Rinse with hands pointed downward.

- Work up a lather and spread it over hands and wrists. Work the lather in between the fingers and under the fingernails. Clean under the nails with an orangewood stick.
- Rinse thoroughly under warm running water with the hands down. (See Fig. 7-15.)
- Dry the hands with a paper towel. Use a paper towel to turn off the faucet.

Sterile Gloves

When putting on sterile gloves, it should be remembered that the hands only are surgically clean. Therefore, never touch the outside of the glove as this will render it unsterile.

When putting on sterile gloves, this procedure should be followed:

- Wash hands thoroughly and clean under the fingernails. Dry with a sterile towel.

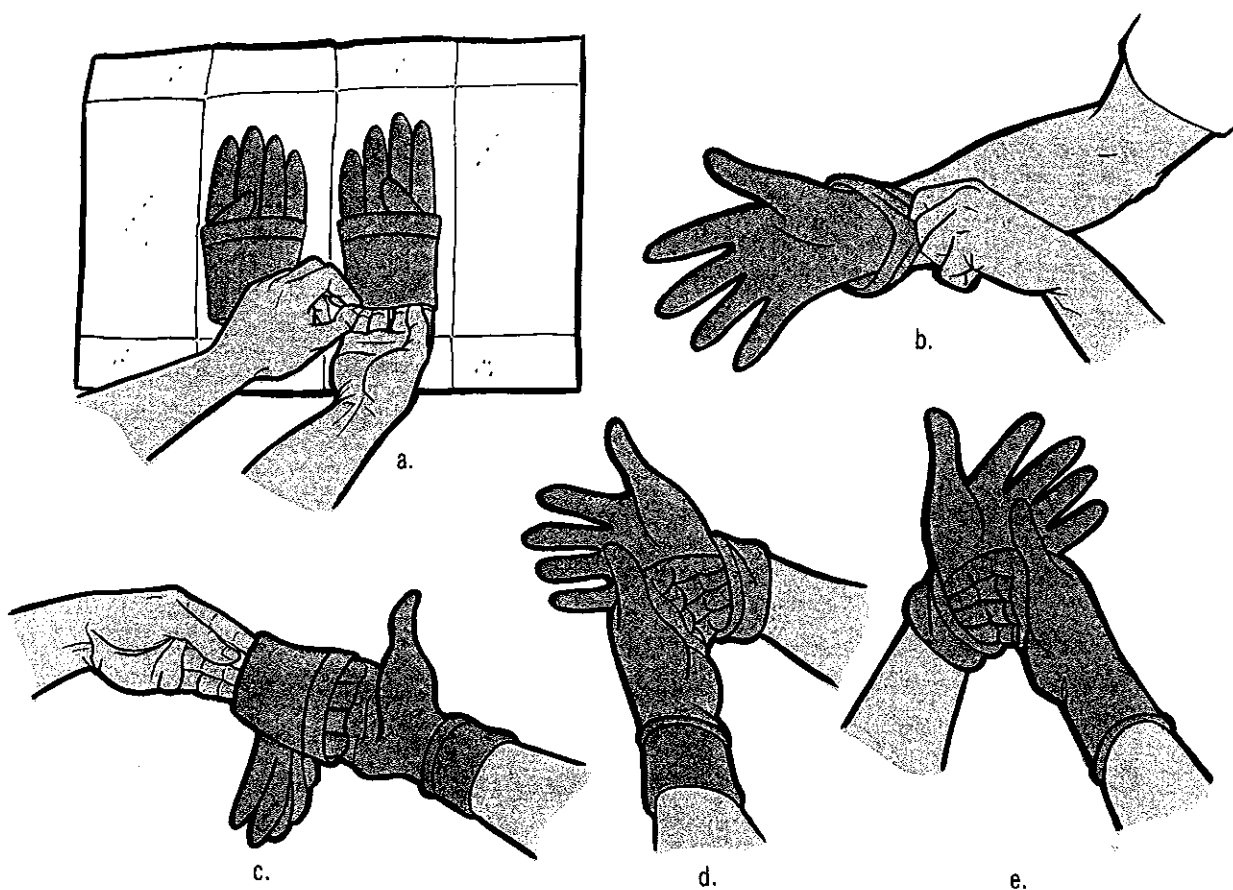


Fig. 7-16. Putting on sterile rubber gloves.

- Open the sterile glove package as directed on the disposable wrapper.
- With the left hand, pick up the right glove by the folded-down cuff (avoid touching the outside of the glove) and pull it onto the right hand, leaving the cuff intact. (See Figs. 7-16a and 7-16b.)
- Insert the gloved fingers of the right hand *under* the cuff of the left hand glove, and slip the left hand into the glove. (See Fig. 7-16c.)
- If it is necessary to pull up the cuffs, keep the gloved fingers on the outer side of the gloves (under the cuff). (See Figs. 7-16d and 7-16e.)
- The outside of the glove should not be touched by bare hands or any other unsterile material.

Isolation Techniques

Patient Care in Isolation

The nursing care of a patient with a communicable disease is identical to the nursing care provided for any patient with a disease of corresponding severity. However, certain precautions must be taken to prevent the spread of the disease from the patient to attendants or to other crew members.

A communicable disease usually spreads by direct contact with the individual having the disease or with articles that have been used by the patient. *Therefore, it is important to isolate the patient and the articles needed for his care.* If possible, the isolation room should have private toilet facilities.

Certain precautions must be observed. The patient should be instructed to cover his mouth and nose with a tissue wipe, when coughing or sneezing. The hands of the attendant must be washed each time after caring for the patient or handling articles that have been in contact with him.

Under the following circumstances, a protective gown and mask should be worn each time one enters the patient's room:

- If a person plans to remain in the room more than one minute.
- If anyone is going to give the patient personal care.

A gown and mask need not be worn when delivering or picking up material or equipment

which does not involve any personal care or close contact with the patient.

Eating utensils should be cleaned of food scraps before they are removed from the sickroom. The solid portion of the patient's uneaten food should be discarded in a double-waxed paper bag that has been opened and put on preplaced newspapers outside the entrance to the patient's room. The liquid portion of the unused food should be discarded into the toilet.

The dishes and utensils can be placed in the large double paper bag located outside the entrance to the patient's room. Care should be taken not to contaminate the outside of the paper bag.

Dishes and utensils should be washed separately from those used by other members on shipboard, unless a dishwasher is available. Disposable items should be used when available.

Linens should be placed in a double cloth bag and labeled "isolated." They should be stored until they can be laundered. Linens from most patients can be decontaminated through normal procedures in a commercial laundry.

No visitors should be allowed. Only the person giving care should be permitted in the room.

Use of Gown and Mask

Hands should be washed before putting on a gown and mask. (See p. VI-17.) The gown should come together in the back and be long enough to cover to the knee or below. These should be donned outside the patient's room.

When putting on a gown and mask, this procedure should be followed:

- Slip the arms into the sleeves of the gown without touching the outer side.
- Fasten the gown at the top of the neck, at the waist, and tie in front.
- Put on a mask to cover the nose and mouth.

When removing a gown and mask, this procedure should be followed:

- Wash the hands thoroughly with soap and water and dry with paper toweling.
- Remove the face mask being careful to touch only the strings or elastic.

- Unfasten the gown at the neck and the waist.
- Remove the gown taking care not to contaminate the clothes underneath it.
- Fold the gown so that the contaminated portion is folded inside.
- Wash the hands again taking care to point them downward while rinsing. Dry with paper toweling.

TREATMENT AND PROCEDURES

Application of Cold

Exposure to cold slows down the work in the cells, and the blood supply to a body part is decreased because the blood vessels narrow. Therefore, cold applications should be applied to any part of the body which is injured and may bleed, in order to narrow the blood vessels and prevent hemorrhage.

Cold applications also are indicated in persons with certain infections (as an infected appendix or abscessed tooth) to prevent swelling and further damage that the swelling could cause. Thus, icecaps frequently are used when bleeding is highly possible, after an injury (as a blow to the lips or a sprained ankle) or in treating an infected area to prevent it from filling with blood and swelling.

Prolonged applications of cold, or exposure to excessive cold, may cause death of the body cells. Cold narrows the blood vessels so that the blood supply to the body part is cut off. Then, even though cellular activity is slowed down, the cells die because they are unable to take in food and oxygen or remove waste material. Signs of death of tissue include paleness, grayish-white appearance, or blueness (cyanosis) of the skin. Therefore the body part receiving a cold application must be watched as carefully as one receiving a hot application. The attendant should be on the alert for any signs that indicate tissue destruction.

Cold Eye Compresses

Cold, in the form of cold compresses, often is applied to an inflamed (reddened) eye to lower the blood flow to the eye. This reduces the bloodshot appearance of the eye and eases the pain caused by swelling.

When applying cold eye compresses, this procedure should be followed:

- Assemble equipment
 - Sterile 4" x 4" compresses or eyepads
 - Small round basin
 - Bath towel
 - Paper bag
- Place several large pieces of ice in the basin and add tap water.
- Drape the person with a bath towel.
- Dip a compress into the cold solution, wring it out and place it over the eye.
- Prepare the next compress. Remove the one on the eye and replace it with the fresh cold compress. Apply these cold compresses for a period of 15 to 30 minutes.
- If the eye is infected, use a fresh compress each time and discard the used one into a paper bag.

Cold Moist Compresses

With any compress, warm or cold, care must be taken to show that the patient does not have an adverse reaction to the treatment. Cold moist compresses should be discontinued if the patient complains of numbness, or if the body part shows signs of paleness (either grayish-white or blue).

When applying a cold moist compress, this procedure should be followed:

- Assemble equipment
 - Basin with water
 - Ice
 - Compresses, 4" x 4" or 4" x 6" (suitable in size for the part of the body to be treated)
 - Foil
 - Waterproof sheet
 - Bulb syringe
- Place the pieces of ice into a basin and add cold tap water.
- Place the compresses on top of a piece of foil, fold the edges of foil toward the material (try to avoid sharp edges).
- Wet the compresses with cold water drawn into a bulb syringe, and place over the affected part. (Water is drawn into the bulb syringe by first depressing the bulb with the fingers before

placing it in the basin of water. Release the bulb when the tip of the syringe is under water.)

- Repeat the procedure when the compress is no longer cold.
- Remove the compresses after a 20 to 30 minute treatment.
- Dry the area after the treatment is completed.

Ice Cap (Dry Cold)

When applying an ice cap, this procedure should be followed:

- Fill the ice cap about one-half full of ice.
- Expel the air before closing the cap. (Air increases the rapidity with which the ice melts and decreases the flexibility of the cap.)
- Test the cap for leakage.
- Cover the ice cap with a soft absorbent material.
- Apply the ice cap to the affected part. If the ice cap has a metal top, keep it turned away from the patient's body.
- Apply for one-half hour and discontinue for one hour. Then reapply. Remove the ice cap if the patient complains of numbness, or if any sign of extreme whiteness or blueness of the part occurs.
- Refill as the ice melts.

Application of Heat

Heat should be applied to a patient's body when an infection is present, to increase circulation to a body part, help reduce congestion and inflammation, and relieve pain. In cases of abdominal pain or suspected appendicitis, NEVER APPLY HEAT—and contact a physician for directions.

When heat is applied to a patient's body, these safety measures should be carried out:

- Test the water solution to be sure it is the exact temperature required. The following temperatures are guides only:

Hot bath: 110°F (43.3°C).

Warm bath: 95°F (35°C).

Foot Soak: 110°F (43.3°C).

Hot wet dressing: 110°F (43.3°C).

Hot water bottle: 115°F (46.1°C).

- Watch carefully for excessive redness on the patient's skin which may indicate that a burn is occurring.

- Apply the heat for the specified time.

- To prolong the effects of the treatment, keep the treated part warm, after the heat application is removed.

- To reheat the soak solution used on an arm or leg, *first remove the patient's limb from the container before adding the hot water* required to raise the solution to the desired temperature.

Dry Heat

Hot Water Bottle (110°F to 120°F or 43.3°C to 48.9°C)

When applying a hot water bottle, this procedure should be followed:

- Fill the hot water bottle (one-half or three-fourths full) with water at about 115°F (46.1°C).
- Expel the air until the water comes to the top. Test for leakage.
- Cover with a towel.
- Apply to the specified area of the body.
- Return to the patient in 15 minutes and check his skin for excessive redness or possible burning.
- Refill as necessary (at least every hour) to keep the water at the desired temperature.

Heating Pad

A heating pad also can be used to supply dry heat. However, care must be taken to insure that the temperature of the pad is not increased accidentally. Also, to avoid possible injury to the patient, electrical wiring and connections should be checked for flaws.

The area of application to the body should be checked at least every hour to offset possible burning of the patient's skin.

Warm Wet Soaks

When applying warm wet soaks (continuous dressings), this procedure should be followed:

- Assemble equipment

4" x 4" sterile compresses, abdominal pads (ABDs) 8" x 7½", or bath towel. (Choose

dressing that is suitable in size for the part of the body to be treated.

Basin of warm water 110°F (43.3°C).

Waterproof sheet.

Bath towel or bath blanket.

Gauze bandage strips.

Bulb syringe

- Place the bath towel or blanket over the waterproof sheet; then place it under the body part to be soaked.
- Place the compresses to be used in a basin of warm water, wring out well, and place them on the part in such a way that the area is covered completely.
- Wrap the waterproof sheet and bath blanket around the body part and tie them securely in position with strips of gauze bandages.
- Return to the person's bedside every two hours and dampen the compresses with warm water using a bulb syringe. Rewrap the part.

Continuous hot wet soaks to a flat surface of the body (as the chest or abdomen) can be applied and covered with a small piece of plastic and held in place with an elastic bandage. (*Do not have the plastic contact the skin.*) A hot water bottle one-third full, with the air expelled, can be placed on top of the soaks to maintain the heat for a longer period.

Cool or Tepid Sponge Bath

Usually this is done for fevers over 102°F (38.9°C). The patient must be watched for any adverse reaction to the cool sponge.

When giving a cool or tepid sponge bath, this procedure should be followed:

- Assemble equipment
 - Basin with cool water, temperature about 60°F (15.6°C)
 - Washcloths (2)
 - Large waterproof sheet
 - Cotton blankets (2)
 - Towels
- Keep the patient covered with a cotton blanket during the procedure. Remove pillows and pajamas.
- Place the waterproof sheet covered with a

cotton blanket under the patient to protect the bedding.

- Check the patient's vital signs and record them on a sheet of paper, including the time.
- Sponge the body in orderly fashion, uncovering one part at a time. Proceed so that no part is missed, doing arms, chest, abdomen, front part of legs, back, buttocks, and back part of legs. Alternate the washcloths as necessary.
- Watch the patient's color and check his pulse. If the pulse becomes weak or the lips turn blue, discontinue the treatment.
- Continue the treatment for 20 minutes, if no complications occur.
- Using a towel, pat the skin dry (rubbing may increase body temperature) when the bath is completed.
- Cover the patient with a sheet folded in half. Leave his arms, chest, and legs exposed to promote heat loss.
- Remove the waterproof protection and the cotton blanket from under the patient.
- Make the patient comfortable and allow him to rest.
- Check the patient's temperature (rectally) every 15 minutes. *If tolerated*, give the patient a drink of ice water after his temperature is taken and recorded. Continue until the temperature is normal.
- If the procedure is not to be repeated, make the patient comfortable. Remove and clean the used equipment.

Surgical Dressings

Dressings serve several purposes. If used properly, dressings and the materials used to secure them help to prevent infection, absorb secretions, protect the area from trauma, and restrict motion that might disrupt the approximation (bringing tissue edges close together for suturing) of the wounded edges.

To change a dressing, a procedure should be used that will remove the old dressing without contaminating the wound or the fingers of the person removing it. Equipment will be needed to cleanse the wound, dress it adequately, and secure it. *Sterile instruments must*

be used to remove the dressings adhering to the wound and for treating it. In some instances, sterile gloves may be used.

The size, number, and types of dressings used will depend on the nature of the wound. Packs with individual instruments and dressings should provide the ultimate in safety for the patient.

When applying a surgical dressing, this procedure should be followed:

- Assemble equipment.
 - Sterile disposable dressing set
 - Adhesive strips
 - Disposable gloves
 - Waxed paper bag for old dressing
- Wash hands thoroughly.
- Undo materials securing the dressing. Lift the dressing off by touching the outside portion only. If it is soiled, use an individual forceps or put on sterile disposable gloves.
- Drop the soiled dressing into a waxed paper bag. Later, staple shut and discard into trash.
- Open the gauze dressing packs.
- Using sterile forceps, remove the gauze dressing from its wrapper and place it on the wound. Take care not to touch the portion of the dressing that is going to be placed next to the wound.
- Apply tape to keep the dressing in place.

Catheterization of the Urinary Bladder

Catheterization is the insertion of a catheter (tube) through the urethra into the bladder to remove urine. When performed in a hospital by skilled persons, this procedure is relatively safe. *When improperly performed, there is danger of infection or perforation of the bladder. Therefore, catheterization should be done only by skilled persons.* In most instances aboard ship, when it is necessary to catheterize a patient, an indwelling catheter probably will be indicated.

A patient who has been consuming a normal amount of fluid but has not urinated in 24 hours, probably needs catheterization. Before performing it, try the following to induce a normal flow of urine:

- Provide privacy and the sound of running water.
- Let the patient stand, sit, or kneel.
- Apply a hot water bottle to the lower abdominal area.

If catheterization is considered necessary, get medical advice by radio and ask the physician if a Foley (indwelling) or a French catheter should be used. If the physician recommends an indwelling catheter, then go to p. VII-25 where the retention procedure is described. If a routine catheterization will suffice, proceed as directed below.

Equipment Needed: The following should be obtained—

A sterile disposable catheterization tray which contains a 14 French straight catheter, sterile gloves, small forceps, cotton balls, lubricant, antiseptic solution, underpad and drape, specimen container, and label.

Catheterization (Male)

Explain the procedure to the patient and state that there will be only a slight discomfort. Fear and worry will stimulate the patient's muscles to tighten and it will be difficult to pass the catheter into the bladder.

Preparation of Male Patient: Assemble the equipment. Before opening the tray, the patient should be prepared for routine catheterization, as follows:

- Fanfold the top covers to the foot of the bed while covering the patient with a sheet or light blanket.
- Have the patient on his back with knees bent.
- Expose his penis, keeping the rest of the body covered. This can be done by pushing the bath blanket in from the side.

After the patient is prepared, the attendant's hands should be scrubbed thoroughly, especially under the fingernails.

Procedure (Male): For a routine catheterization of a male patient, the following procedure should be used—

- Follow the directions for opening the catheter and catheter tray, as written on the wrapper.

- Put on sterile gloves (see p. VII-18).
- Grasp the penis with the left hand and stand at the patient's right side. With the right hand scrub the end of the penis with povidone-iodine skin cleanser (or the cleanser provided in the disposable catheterization tray) and cotton balls.
- Pick up the catheter, holding it at least eight inches from the tip. Do not touch the part of the catheter which is to be inserted inside the patient.
- Apply the lubricant to at least seven inches of the catheter. *Thorough lubrication is essential.*
- Hold the penis straight with the left hand while inserting the catheter (see Fig. 7-17). This position straightens out the urethra.
- Use gentle but steady pressure to insert the catheter. A slight resistance may be felt upon approaching the bladder's sphincter muscle, but gentle pressure should push the catheter past it. If the catheter cannot be inserted with gentle pressure, and a firm resistance is felt—*then stop!* Get medical advice by radio. *Never force the catheter as it may seriously damage the bladder or urethra.*
- Position the basin under the catheter.

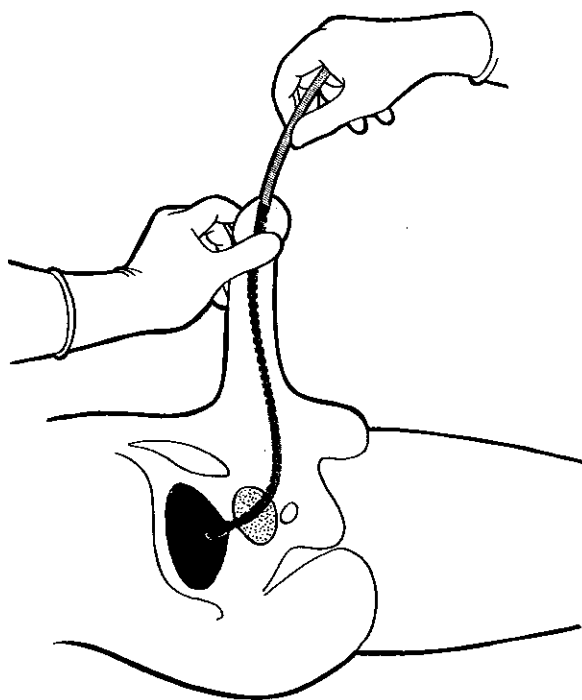


Fig. 7-17. Catheterization (male).

- Insert the catheter (usually seven to eight inches) until urine begins to flow.
- Catheterization aboard ship takes place when absolutely necessary, usually because of urinary tract obstruction. Once catheter has been inserted, *do not remove it*. Tape it in place and obtain medical advice by radio regarding further use of the catheter.
- Record the date and time of day for the procedure, and the amount and color of the urine obtained.

Catheterization (Female)

If catheterization is considered necessary, medical advice by radio should be obtained on the procedure, including whether a Foley (indwelling) or a French catheter should be used. If the physician recommends an indwelling catheter, then go to p. VII-25 where the retention procedure is described. If a routine catheterization will suffice, proceed as directed below.

Always explain to the patient the procedure and assure her that she may feel only slight discomfort. Try to keep her relaxed, because fear and worry will stimulate the muscles to tighten, and make it difficult to pass the catheter into the bladder.

Assemble the necessary equipment (see p. VII-23). A floor lamp will help the attendant to locate and see clearly the urinary meatus of the female.

Preparation of Female Patient

Before opening the tray, the female patient should be prepared for routine catheterization as follows:

- Fanfold the top covers to the foot of the bed, while covering her with a sheet or light blanket.
- Have the patient lie on her back with the knees bent, thighs separated, and feet flat on the mattress. Drape her thighs and legs with the right and left corners of the sheet and tuck the free edges under her feet.
- Do not fold back the bottom corner of the sheet to expose the vulva, until ready to start the catheterization.
- Place the lamp on the far side of the bed and adjust the light to shine on the perineal area.
- Scrub the hands. Maintaining aseptic technique, uncover the sterile tray.

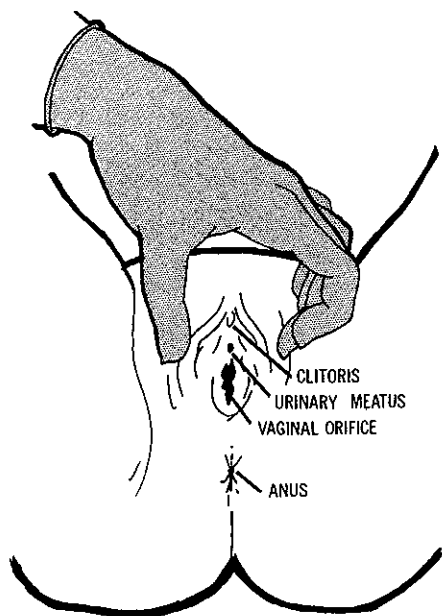


Fig. 7-18. Site for catheterization (female).

- Fold back the drape sheet to expose the vulva. Encourage the patient to relax. Have her breathe regularly and slowly to lessen tension.
- Put on sterile gloves. (See p. VII-18.)
- Pour the prescribed solution over four cotton balls in the container provided.
- Squeeze the lubricant onto a gauze sponge.
- Place the sterile towel between the patient's thighs and pull the top edge just under the buttocks. Fold about three inches of the towel over the gloved hands to offset possible contamination of the gloves, while placing the towel under the buttocks. Use care to protect the exposed sterile surface. Do not contaminate the gloves.
- With the gloved left hand, separate the labia to expose the urinary meatus. (See Fig. 7-18.) The meatus should be visible as a small opening about one-fourth inch above the vagina.
- Keep the left hand in position, holding the labia apart until the catheter has been inserted. *Remember, the gloved left hand is no longer sterile.*
- With the gloved right hand, pick up one saturated cotton ball in the solution basin; with no retracing, cleanse the meatus and vestibule

from above downward. Repeat this procedure with the remaining cotton balls. Try to prevent the right hand from touching the meatus. Discard each cotton ball into the waste basin.

- With the gloved right hand, pick up the sterile basin and place it on the sterile towel, close to the buttocks and below the separated labia.
- With the gloved, sterile right hand, pick up the catheter, holding it about three inches from the tip. Lubricate it.
- Insert the catheter into the meatus about two inches, or until the urine starts to flow. Do not use force if there is resistance. Do not insert more than two inches.
- When the flow of urine decreases, pinch off the catheter and gently withdraw it.
- Leave the patient dry, covered, and comfortable.
- Record the date and time of day for the procedure, and the total amount and color of the urine obtained.

Retention Catheterization (Indwelling) and Urinary Bladder Drainage

A retention (indwelling) Foley catheter is used to permit continuous drainage of the urinary bladder without repeated catheterization. The catheter commonly used is a self-retaining urethral catheter (Foley type). This has a double lumen, with one opening for drainage and the other for inflation of the retention device, which is a small balloon at the tip of the catheter. The retention balloon is inflated with a measured amount of sterile water (or air) following its placement into the bladder. When a retention catheter is used, provision must be made for bladder drainage by tubing connected to a plastic drainage bag. Aseptic technique during urinary drainage is required because the indwelling catheter exposes the patient to a source of chronic irritation which increases susceptibility to infection.

An accurate record of the intake and output of fluid should be kept on patients having an indwelling catheter.

Equipment Needed: For a retention catheterization, the following should be obtained—

- A sterile disposable catheterization tray, which contains a Foley catheter, sterile gloves,

small forceps, cotton balls, lubricant, antiseptic solution, a needle and syringe with sterile water, underpad and drape, specimen container and label.

- Sterile drainage tubing with plastic container.
- Safety pins.

Preparation of the patient: Before opening the tray, the patient should be prepared for indwelling catheterization the same as described for routine catheterization on p. VII-23 (male) or p. VII-24 (female).

Procedure for Placement of Retention Catheter

- To open the Foley catheter tray, follow the directions written on the wrapper.
- Put on sterile gloves and check the retention catheter for defects by injecting the specified amount of sterile water or air into the balloon lumen. The capacity of the balloon is written on the catheter. Then deflate the balloon before proceeding with the catheterization.
- Insert the catheter as for a routine catheterization.
- Inflate the catheter balloon after inserting the catheter. Inject the required amount of sterile water (or air) into the self-sealing balloon lumen. When properly positioned and inflated, the balloon will lie within the bladder at the bladder outlet. *The patient will experience severe pain if the balloon is inflated when in the urethra.*
- Clamp off the catheter and protect the open drainage lumen temporarily with a dry sterile gauze square.
- Use adhesive to secure the catheter in place. *For female patients*, anchor the catheter to the skin of the inner thigh, placing the adhesive toward the groin. *For male patients*, use the thigh also *unless medical advice by radio* specifies that the penis is to be positioned upward on the pubis, with the catheter anchored to the lower abdomen. This position helps prevent urethral edema.
- Connect the catheter to the urinary drainage tubing and drainage bottle, maintaining sterility of the drainage system.

- (1) Connect the open end of the drainage tubing to the catheter.
- (2) Unclamp the catheter.

- (3) Adjust the tubing from the catheter to the drainage bottle *so that no kinks and no loops of tubing extend below the level of the entrance of the tubing into the bottle. This is necessary to provide effective gravity drainage.*
- (4) Check the air-vent opening in the bottle or plastic bag closure. The vent must be open to insure drainage from the bladder.
- (5) Loop an elastic band around the drainage tubing, and pin this loop to the bottom sheet. There should be no strain on the catheter and just enough length of tubing (about 40 inches) to enable the patient to turn and move freely.
- (6) Place and secure the drainage container below the bedframe.

Followup Care: The retention catheter and drainage system may be continued for days or weeks, as directed over the radio. If the catheter stops draining, it should be changed as directed by a physician over the radio. Daily continuing care of the patient and the equipment includes the following essentials—

- Maintain an accurate record of the intake and output. Unless otherwise ordered, encourage the patient to drink daily at least 3000 ml of fluids to provide an effective internal irrigation system for the bladder, catheter, and the drainage tubing.
- Check the tubing and catheter connections frequently for kinks. Make sure the patient does not lie on the tubing because this will obstruct drainage and cause undue pressure on the skin.
- Maintain cleanliness and protect the urethral meatus. This requires direct observation and specific hygiene measures. For females, wash the perineal area carefully from front to back. Cleanse the urinary meatus around the catheter with sterile sponges moistened with povidone-iodine solution 1%. To help reduce irritation and possible infection, remove gently but thoroughly secretions of mucus and other discharges.
- Replace the drainage set (tubing, connector, and bottle) with a sterile set daily to reduce bacterial growth and odor.

- Measure and record the collected output of urine. Do not let the drainage bottle get more than three-fourths full, in order to prevent the tubing outlet from becoming immersed in the urine that is draining.
- Use aseptic technique to disconnect the catheter from the drainage tubing when the drainage set is replaced, a specimen is collected, or the catheter is irrigated:
 - (1) Wash the hands.
 - (2) Before disconnecting, clamp the catheter. A hemostat clamp may be used, with the tips covered with rubber tubing to prevent damage to the catheter. Be sure to unclamp the catheter after reconnecting it to the drainage tubing.
 - (3) As the catheter is disconnected, wipe the end of both catheter and connector with an individual germicide-saturated sponge. Cover the ends of the catheter and connector with a dry, sterile sponge, securing each with a rubber band. *Do not allow the drainage tubing to fall to the floor. If this should occur, the tubing will be contaminated and must be replaced.*
 - (4) Remove the sterile sponge before reconnecting the catheter to the drainage tubing.

The Ambulatory Patient

- To provide continuing gravity drainage for the ambulatory patient:
 - (1) The patient must carry the drainage bottle lower than his urinary bladder; and
 - (2) When standing upright, check to see that the tubing is not excessively long and not looped below the level of the bottle or above the urinary bladder.

Removal of a Retention Catheter

- Always deflate the balloon of a self-retaining catheter before removal.
- After the balloon is deflated, the catheter is removed in the same way as a French catheter.

Irrigation of the Bladder

Irrigation of the bladder is done primarily to wash out the catheter and prevent obstruction. This is a sterile procedure that must be done gently to prevent injury and spread of infection within the bladder.

The following equipment is needed:

Sterile bulb syringe, 30 ml
 Sterile solution basin
 Flask of prescribed sterile solution
 Sterile towel
 Sterile gauze sponges
 Hemostat, rubber-shod
 Elastic bands
 Emesis basin

To irrigate the bladder proceed as follows:

- Scrub the hands thoroughly.
- Open the sterile packages. Pour the prescribed solution, which must be at room temperature, into the basin. Fill the bulb syringe.
- Open the sterile towel halfway and place to one side of the catheter-connector attachment.
- Clamp off the catheter, detach the connector, and place the end of the catheter on the sterile towel. Protect the open connector with the sterile gauze sponge and elastic band.
- Insert the tip of the bulb syringe into the catheter. Unclamp the catheter. Allow the solution to run in slowly with only gentle pressure on the syringe bulb. Pinch off the catheter while removing the bulb syringe. Keep the bulb of the syringe deflated when removing the syringe from the catheter. Allow 30 ml of solution to flow into the catheter at one time. Do not aspirate the irrigating fluid back. Pinch the catheter closed, remove the syringe and invert the end of the catheter over the emesis basin. Let the solution flow into the basin. Continue the irrigation until the return is clear.
- If the irrigating fluid flows in readily but fails to return, a clot may be obstructing the catheter opening. Do not add additional fluid, but try to dislodge the clot by gently squeezing or "milking" the tubing just below the connector.
- Reconnect the catheter to the tubing after terminating the procedure.
- Record the time of day and total amount of irrigation. If an input and output record is being maintained, measure and record the amount of return, if any, in the emesis basin. Subtract the total amount of irrigating fluid from the output total in the drainage bottle.

Enemas

An enema is an injection of fluid into the rectum. The two types of enemas are the *cleansing enema* and the *retention enema*.

In a *cleansing enema*, the fluid is expelled after five minutes. In the *retention enema*, the fluid should be retained in the rectum for four hours; then expelled.

Several pharmaceutical companies manufacture prepackaged, disposable, cleansing, and retention enema units. They come with directions for use. *It is recommended that disposable units be used whenever possible* because of the convenience of use, storage, and elimination of the need for cleaning and disinfecting. The disposable enema is stored at room temperature and can be given to the patient at that temperature.

Cleansing Enema

The procedure should be explained to the patient. A rubber sheet with covering should be placed under the patient. When giving an enema, this procedure should be followed:

- Assemble equipment.
 - Disposable enema package
 - Bedpan
 - Toilet paper
- Instruct the patient to lie on the left side with the knees bent upward.
- Remove the cover from the rectal tube on the disposable enema.
- Insert the already lubricated rectal tube (three inches long) into the rectum.
- Inject the fluid by squeezing the plastic bottle until it is empty.
- Remove the rectal tube.
- If ambulatory, send the patient to the bathroom. If not ambulatory, place the patient on the bedpan.
- Raise the patient until he is in a sitting position on the bedpan. The patient usually has a bowel movement in five to ten minutes.
- Discard the disposable enema set.

Oil Retention Enema

An oil retention enema usually is given to soften a hard fecal mass that has formed in prolonged constipation.

Before giving the enema, the patient should be told that this fluid is to be retained and not expelled.

If an oil retention enema is to be given and a prepackaged disposable unit is available, no additional preparation will be required. The directions on the package should be followed. If no prepackaged unit is available, this procedure should be followed:

- Pour four ounces of olive oil or mineral oil into a container.
- Place the container of oil into a basin of warm water.
- Remove the container of oil from the water bath when a drop feels warm on the inner part of the wrist, and put it on a tray containing:
 - a 14 French catheter
 - small funnel
 - toilet tissue
- Turn the patient onto his left side and keep the bed flat.
- Give the oil retention enema as follows:
 - Lubricate the catheter by dipping it into the oil.
 - Insert the catheter about three inches into the rectum.
 - Attach the funnel to the other end of the catheter.
 - Pour the oil onto the side of the elevated funnel and let it run into the rectum. This prevents air from being forced into the rectum.
 - Continue until all the oil is given.
- Remove the catheter and at the same time apply pressure to the rectum with a large wad of toilet tissue as you squeeze the buttocks together.
- Place the patient into a back-lying position.
- Leave the waterproof sheet and drawsheet in place as there is usually seepage of oil from the rectum.

An oil retention enema usually is followed in four hours by a cleansing enema.

SPECIAL DIETS

Introduction

In many instances, the treatment of a patient's illness includes the type and quantity of food that the person eats. Special diets, as any other mode of treatment, should be used upon the advice and prescription of a physician. There are, of course, many different types of special diets. Some of the ship's company already may be on such a diet, which was prescribed by a physician to help control an existing condition. The following special diets include: (1) a *bland diet* that consists of easily digested, non-irritating foods; (2) a *mild salt (sodium)-restricted diet*; and (3) two frequently used *diabetic diets* that are designed for loss of weight or weight maintenance. These diets should not be considered as replacement diets for patients who already have been placed on a special diet by a physician. The diets are basic information, if a special diet is required.

Bland Diet

The *bland diet* is designed for those individuals who must avoid foods known to be irritating to the gastrointestinal tract. The diet that follows consists of approximately 2,300 calories—230 grams carbohydrate, 110 grams protein, and 110 grams fat. The *bland diet* meets the recommended daily allowance of the National Research Council (NRC), when foods are eaten in the amounts described hereafter, which consist of three meals and three intermediate feedings. Meals should be small and the patient should be urged to chew his food well.

Table 7-4: Bland Diet
RECOMMENDED DAILY FOOD ALLOWANCES

4 servings	Milk*
1 or 2	Egg*
6 oz	Meat*
3-6 slices	Bread
2 servings	Potato (or substitute)
1 serving	Cereal
2 servings	Vegetable (cooked)
3 servings (at least 1 citrus fruit)	Fruit
1-2 servings	Dessert*
3-6 servings	Fat*

*In cases of obesity and hyperlipidemia, modification of the diet should follow foods allowable within the caloric restrictions and the recommendations of the National Institutes of Health, respectively.

Table 7-5: Bland Diet
MEAL PATTERN SUGGESTED

Breakfast

Fruit or Fruit Juice
Cereal
Egg
Toast
Margarine
Milk
Sugar
Jelly
Salt

Midmorning

Meat or Substitute
Fruit

Lunch

Cream Soup
Meat or Substitute
Potato or Substitute
Vegetable
Dessert or Fruit
Bread
Margarine
Milk
Salt
Sugar

Midafternoon

Bread or Substitute
Meat or Substitute
Margarine

Dinner

Meat or Substitute
Potato or Substitute
Vegetable
Dessert or Fruit
Bread
Margarine
Milk
Salt
Sugar

Evening

Bread or Substitute
Milk

Table 7-6: Bland Diet

FOOD PATTERN SUGGESTED

Type of Food	Foods to Include	Foods to Avoid, if Intolerable
Meats, Eggs, Cheeses	Baked, broiled, roasted, or stewed: beef, lean pork, ham, veal, lamb, liver, poultry—Canned, fresh, frozen fish and other seafood—Soft, hard-cooked, poached, or scrambled eggs—Cottage cheese, cream cheese, mild processed cheese, cheddar cheese—Plain yogurt.	Fried or highly seasoned meats, fish, poultry, or eggs; smoked fish or meats; frankfurters or cold cuts of meat; other cheeses.
Potato or Substitute	White or sweet potatoes without skin, hominy grits, macaroni, noodles, spaghetti, refined rice.	Potato skins, fried potatoes, potato chips, whole grain rice, corn.
Soups	Cream soups and vegetables made from foods allowed.	Soups made from dried beans or peas, bouillon, broth, or consomme.
Sweets	Candy without fruit or nuts, honey, jelly, molasses, sugar, syrups (all in moderation).	Candy containing fruits or nuts; jams and preservatives with seeds and skins.
Vegetables	Vegetable juices—Canned or cooked: asparagus, beets, carrots, green or wax beans, spinach, pumpkin, squash, green peas, tomatoes, peeled eggplant, baby lima beans, leafy lettuce (chopped).	All raw and strongly flavored vegetables; broccoli, brussels sprouts, cabbage, cauliflower, cucumbers, onion, pepper, radish, turnips, dried beans, and legumes.
Miscellaneous	Salt, smooth peanut butter, cinnamon, and vanilla.	Catsup, horseradish, mustard, nuts, olives, pickles, popcorn, relishes, chili sauce, spices, pepper, chili powder, cloves, mustard seed, and nutmeg.

Mild Sodium-Restricted Diet (2 to 3 grams of sodium)

The mild sodium-restricted diet is prepared using regular foods from the galley, with *no salt added* at the table. The following foods in Table 7-7 should be totally excluded from this special diet.

Diabetic Diets

The 1,800 and 2,200 calorie diets, recommended by the American Diabetes Association and the American Dietetic Association, are to be used in conjunction with the *food exchange lists*. Both the 1,800 and 2,200 calorie diets are designed to lower blood glucose levels. Also, the 1,800 calorie level is used for weight loss. (See Table 7-8.) And the 2,200 calorie diet is intended to maintain weight. (See Table 7-9.)

Table 7-7: Mild Sodium-Restricted Diet

FOOD TO BE TOTALLY EXCLUDED

Breads	Salted crackers, salted popcorn, salted potato chips, salted pretzels, salted cheese crackers
Fats	Bacon drippings, commercial salad dressings
Meats & Fish	Cured meats (ham, bacon, sausage, frankfurters, cornedbeef, cold cuts) and cheese
Soups	Salted soup, bouillon, broth, canned soup
Vegetables	Sauerkraut
Miscellaneous	Salt, celery salt, garlic salt, and onion salt—Gravies or stews made with gravy—Catsup, chili sauce, mustard, soy sauce, steak sauce, and other sauces—Pickles, olives, and salted nuts

Table 7-8*

1,800 CALORIES DIABETIC DIET—DESIGNED FOR WEIGHT LOSS
(Carbohydrates 180 grams, Protein 83 grams, Fat 80 grams)

Meals	Lists 1A & 1B Milk	Lists 2A & 2B Vegetables	List 3 Fruit	List 4 Bread	List 5 Meat	List 6 Fat
Breakfast	none	none	1 exchange	2 exchanges	2 exchanges	2 exchanges
Lunch	1 exchange	2A-2 exchanges	1 exchange	2 exchanges	2 exchanges	1 exchange
Supper	none	2A-1 exchange 2B-1 exchange	1 exchange	2 exchanges	2 exchanges	1 exchange
Evening	1 exchange	none	none	2 exchanges	1 exchange	1 exchange

* Recommended by the American Diabetes Association and the American Dietetic Association. See Table 7-10, for Food Exchange Lists.

Table 7-9*

2,200 CALORIES DIABETIC DIET—DESIGNED FOR WEIGHT MAINTENANCE
(Carbohydrates 220 grams, Protein 95 grams, Fat 100 grams)

Meals	Lists 1A & 1B Milk	Lists 2A & 2B Vegetables	List 3 Fruit	List 4 Bread	List 5 Meat	List 6 Fat
Breakfast	none	none	1 exchange	2 exchanges	2 exchanges	2 exchanges
Lunch	1 exchange	2A-2 exchanges	1 exchange	3 exchanges	2 exchanges	2 exchanges
Supper	none	2A-1 exchange 2B-1 exchange	1 exchange	3 exchanges	3 exchanges	3 exchanges
Evening	1 exchange	none	none	2 exchanges	2 exchanges	1 exchange

* Recommended by the American Diabetes Association and the American Dietetic Association. See Table 7-10, for Food Exchange Lists.

Table 7-10

FOOD EXCHANGE LISTS

List 1A

WHOLE MILK EXCHANGES

One exchange is 1 of the following:

- 1 cup Whole milk
½ cup Evaporated milk

List 1B

SKIM MILK EXCHANGES

One exchange is 1 of the following:

- 1 cup Skim milk
½ cup Powdered skim milk
1 cup Buttermilk

List 2A

VEGETABLE EXCHANGES

One exchange is 1 cup cooked (raw as desired):

- | | |
|-------------------|--------------------|
| Asparagus | Lettuce |
| Broccoli | Mushrooms |
| Brussels sprouts | Okra |
| Cabbage | Peppers |
| Cauliflower | Radishes |
| Celery | Sauerkraut |
| Chicory | String beans |
| Cucumbers | Summer squash |
| Escarole | Tomatoes (1 whole) |
| Eggplant | or ½ cup |
| Greens (any kind) | Watercress |

List 2B

VEGETABLE EXCHANGES

One exchange is ½ cup:

- | | |
|------------|---------------|
| Beets | Pumpkin |
| Carrots | Rutabagas |
| Onions | Winter Squash |
| Green peas | Turnips |

Table 7-10
Food Exchange Lists (continued)

List 3

FRUIT EXCHANGES

(Unsweetened)

One exchange is 1 of the following:

1 small	Apple
(2" across)	
½ cup	Apple juice
½ cup	Applesauce
2 medium	Apricots (fresh)
4 halves	Apricots (dried)
½ small	Banana
1 cup	Blackberries
¾ cup	Blueberries
¼ small	Cantaloupe
10 large	Cherries
2	Dates
2 large	Figs (fresh)
1 small	Figs (dried)
½ cup	Fruit cocktail
½ small	Grapefruit
½ cup	Grapefruit juice
½ medium	Honeydew melon
1 small	Orange
½ cup	Orange juice
1 medium	Peach (fresh)
½ cup	Peaches (canned)
1 small	Pear (fresh)
½ cup	Pears (canned)
½ cup	Pineapple
½ cup	Pineapple juice
2 medium	Plums
2 medium	Prunes (dried)
¼ cup	Prune juice
2 tablespoonfuls	Raisins
1 cup	Raspberries
1 cup	Strawberries
1 large	Tangerine
1 cup	Tomato juice
1 cup	Watermelon

List 4

BREAD EXCHANGES

One exchange is 1 of the following:

1 slice	Bread or toast
1 medium	Roll or biscuit
1 medium	Muffin
(2" across)	
1 cube (1½")	Cornbread
½ cup	Cereals (cooked)
¾ cup	Cereals (dry)
½ cup	Cooked rice, grits, noodles, macaroni, spaghetti
2 (2½" square)	Graham crackers
20	Oyster crackers
5 (2" square)	Saltines
3 (2½" square)	Soda crackers
6	Crackers (round, thin)
2½ tablespoonfuls	Flour
¼ cup	Beans, baked (no pork)
½ cup	Beans, lima
½ cup	Beans, dried (cooked)
½ cup	Peas, dried (cooked)
¾ cup	Parsnips
½ cup	Corn

1 cup	Popcorn
1 small	Potato, white
½ cup	Potato, white (mashed)
¼ cup	Potato, sweet (yam)
1 (1½" cube)	Sponge cake
½ cup	Ice cream (also omit 2 fat exchanges)
½ cup	Tomato soup (undiluted)
½ cup	Vegetable soup (undiluted)

List 5

MEAT EXCHANGES

One exchange is 1 of the following:

1	Egg
1 ounce	Meat, lean (beef, pork, lamb, liver, veal)
1 ounce	Fish
1 ounce	Poultry
1 (1-ounce slice)	Cold cuts
1	Frankfurter (8 or 9 per pound)
¼ cup	Fish, canned
¼ cup	Lobster or crab
5 small	Shrimp, clams, or oysters
3 medium	Sardines
1 ounce	Cheese (American or Swiss)
¼ cup	Cheese (cottage)
2 tablespoonfuls	Peanut butter (only once daily)

List 6

FAT EXCHANGES

One exchange is 1 of the following:

1 teaspoonful	Butter or margarine
1 slice	Bacon, crisp
2 tablespoonfuls	Cream for coffee
1 tablespoonful	French dressing
1 tablespoonful	Cream, whipping
1 tablespoonful	Cheese, cream
2 small	Olives
6 small	Nuts
½	Avocado
1 teaspoonful	Oil or other fats
1 teaspoonful	Mayonnaise

Recipes

Lemon Gelatin

(May be used in any amount)

1 teaspoonful—	Unflavored gelatin
2 tablespoonfuls—	Cold water
1 tablespoonful—	Lemon juice
½ cup—	Water

Put cold water in the top of a double boiler and add the gelatin. Let stand for 10 minutes at room temperature. Place over boiling water to dissolve the gelatin. *To flavor, an approved* substitute for sugar may be added.* Remove from the stove. Add lemon juice and ½ cup of water. Chill. To make COFFEE GELATIN, omit the

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lemon juice and use $\frac{1}{2}$ cup of coffee instead of $\frac{1}{2}$ cup of water.

Orange Gelatin

(1 serving equals 1 fruit exchange)

Proceed as directed above for *lemon gelatin*. However, omit the lemon juice and add $\frac{1}{2}$ cup of orange juice to $\frac{1}{2}$ cup of water.

Baked Custard

(1 serving equals $\frac{1}{2}$ cup of milk and 1 meat exchange)

1—Egg
 $\frac{1}{2}$ cup—Milk
 A few grains—Table salt
 $\frac{1}{8}$ teaspoonful—Vanilla
 A sprinkle of—Nutmeg

Beat the egg slightly; stir in the milk, salt, and vanilla. *To flavor, an approved* substitute for sugar may be added.* Pour into a custard cup and sprinkle with nutmeg. Set in a pan of hot water and bake in a moderate oven, 350° F (176° C), about 45 minutes. The vanilla may be replaced by other flavors (as almond, lemon, orange, or maple).

Zero Salad Dressing

(May be used in any amount)

$\frac{1}{2}$ cup—Tomato juice
 2 tablespoonfuls—Lemon juice or vinegar
 1 tablespoonful—Onion, finely chopped
 Salt and pepper

If desired, chopped parsley or green pepper, horseradish or mustard, among others, may be added. Combine all the ingredients and store in a jar with a tightly fitted top. Shake well before using. Refrigerate.

Suggestions for Patients on Special Diets

To measure foods, use a standard 8 oz measuring cup, a standard teaspoon, and a standard tablespoon. It is not necessary to buy special foods. Patients may eat the same foods bought for the galley: milk, vegetables, breads,

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meats, fats, and fruits (without added sugar). Food for patients may be prepared with the meals for the rest of the crew; however, portions for patients should be separated before extra fat or flour is added.

To season food for special diets, the following may be used: chopped parsley, cinnamon, pepper and other spices, lemon, lime, vinegar, or an *approved* sugar-substitute*. Other foods that do not have to be measured are: clear broth (without fat), bouillon, gelatin (without sugar), sour pickles, unsweetened dill pickles, cranberries, and rhubarb.

Fruits (fresh, frozen, or canned) may be eaten, as long as no sugar has been added. Labels on canned or packaged foods should be read to make sure there are statements as: *unsweetened* or *no sugar added*.

Vegetables should be cooked in plain salted water. Vegetables may be seasoned with part of the meat or fat allowed. Vegetables, meat, and milk exchanges in a patient's meal plan may be combined to make soups, stews, or other dishes. *If the vegetables are cooked, no more than 1 cupful should be eaten at a meal.* Raw vegetables as lettuce, radishes, celery, and other salad greens may be eaten as desired.

Meats should be cooked by broiling, baking, or roasting, instead of frying. If one wants to fry the meat, use only the amount of fat allowed for the meal. Measure meats after they are cooked. A 3-ounce serving of cooked meat is equivalent to 4 ounces of raw meat.

Foods to Avoid on Special Diets

Sugar	Marmalade	Cake
Candy	Syrup	Cookies
Honey	Preserves	Condensed milk
Jam	Molasses	Chewing gum
Jelly	Pie	Soft drinks

Wine, beer, and other alcoholic beverages usually are not allowed.

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